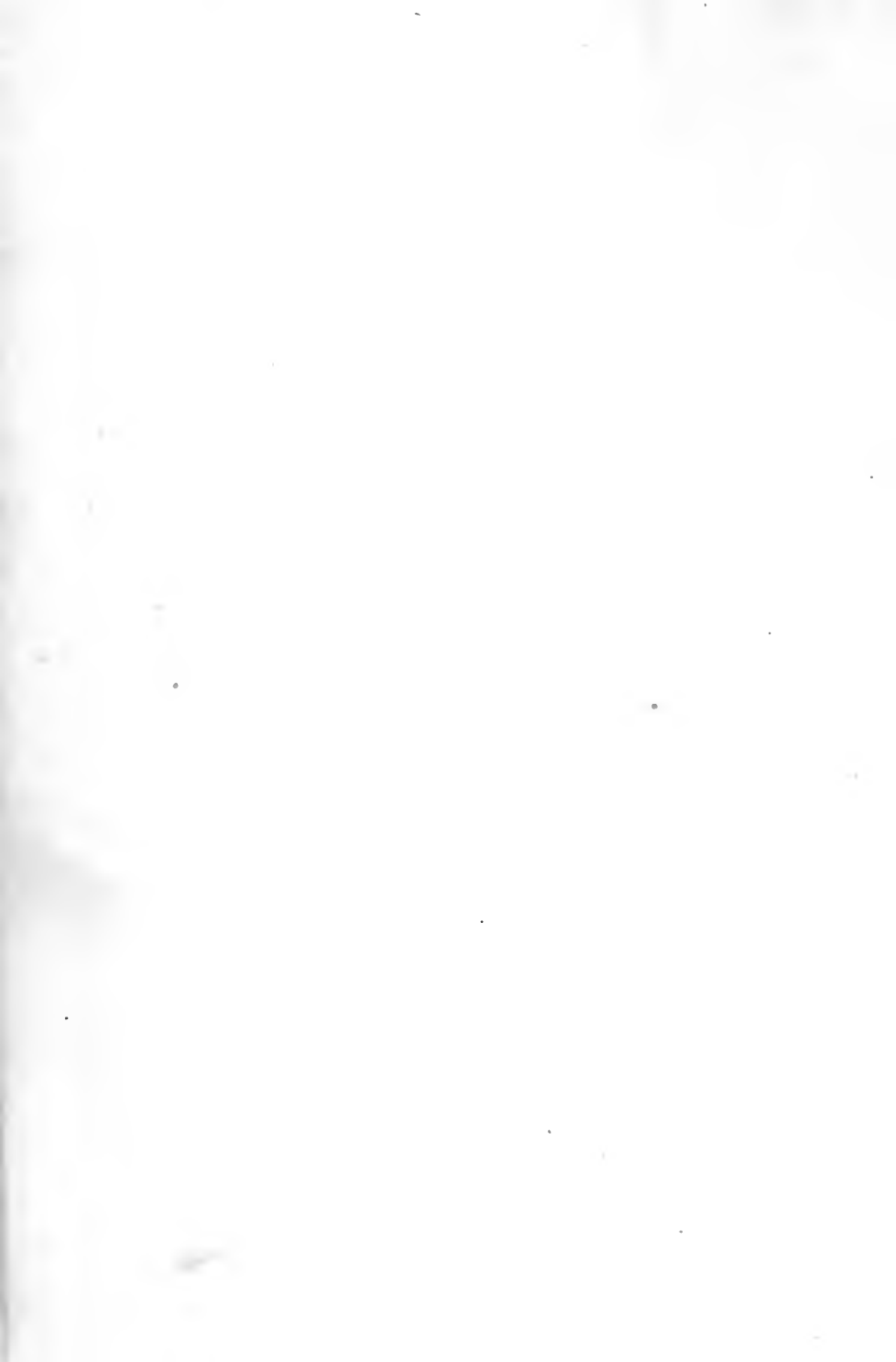
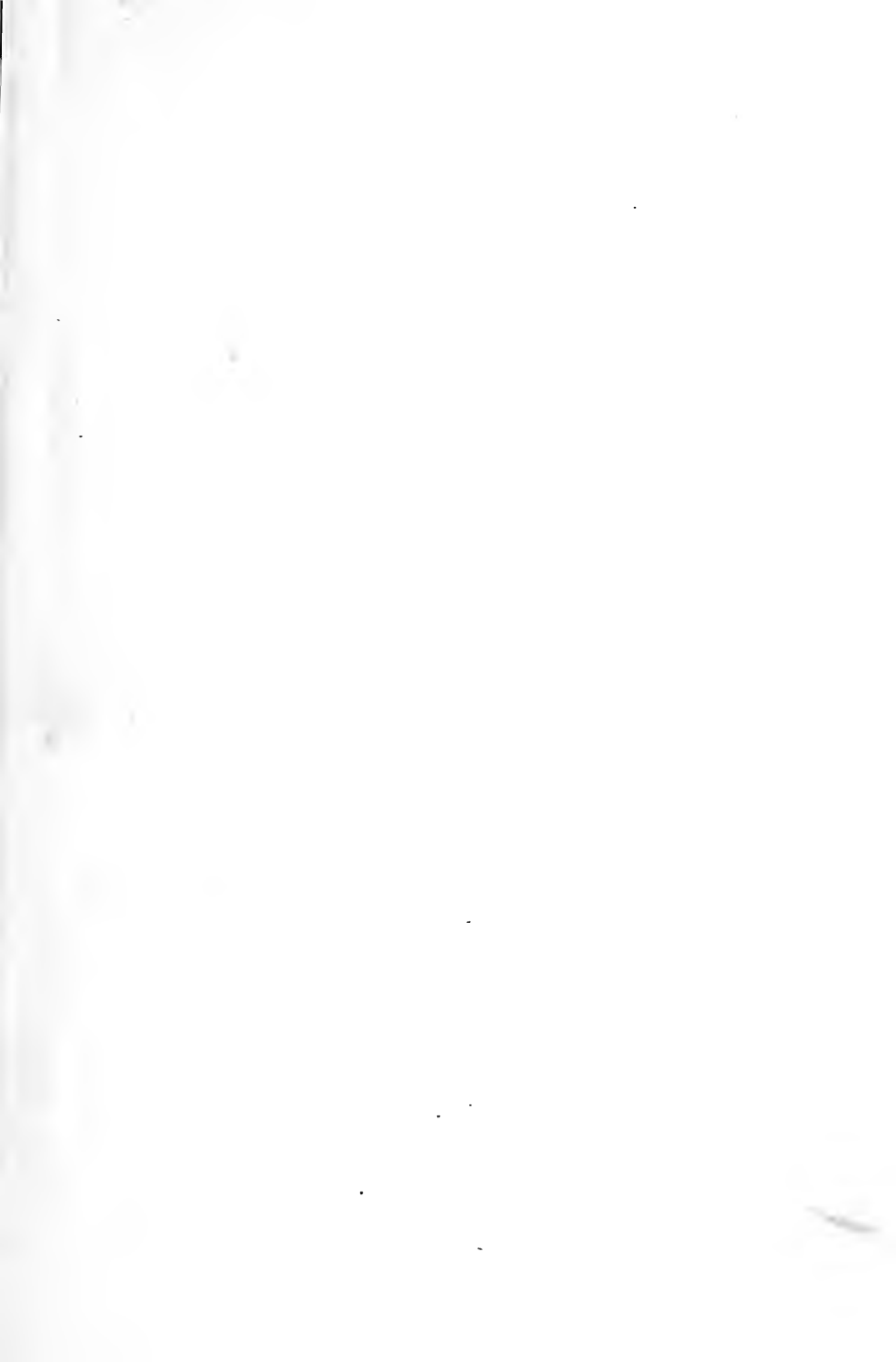


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BUTTERFLIES AND MOTHS

OF

NORTH AMERICA,

WITH FULL INSTRUCTIONS FOR COLLECTING, BREEDING, PREPARING, CLASSIFYING, PACKING FOR SHIPMENT, ETC.,

A

Complete Synonymical Catalogue

OF

MACROLEPIDOPTERA,

WITH

A FULL BIBLIOGRAPHY,

TO WHICH IS ADDED

A GLOSSARY OF TERMS AND AN ALPHABETICAL AND DESCRIPTIVE LIST OF LOCALITIES.

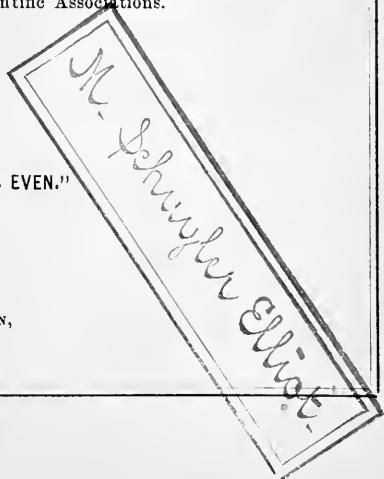
By HERMAN STRECKER,

Life Member of the Academy of Natural Sciences of Philadelphia; Member of the American Entomological Society, and of various other Scientific Associations.

DIURNES.

"TIME AT LAST SETS ALL THINGS EVEN."

READING, PA.
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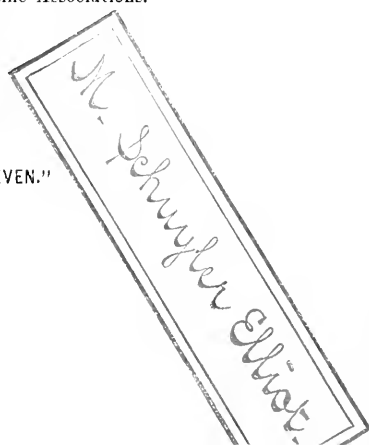
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Co

WILLIAM CHAPMAN HEWITSON

THIS VOLUME IS

WITH PROFOUND RESPECT

AND LOVING REMEMBRANCE

GRATEFULLY DEDICATED.

Hingegangen in den Wind.

Salomo! wo ist dein Thron hingegangen? in den Wind.
Lilie! wo ist deine Kron' hingegangen? in den Wind.
Predigest du in den Wind, Erdenweisheit! immer noch,
Seit der weise Salomon hingegangen in den Wind?
Bruestest du im Hauch des Gluecks dich noch immer, Erdenmacht!
Seit der maecht'ge Salomon hingegangen in den Wind?
Auf des Lebens Fruhlingsan'n draengen tausend Keime sich,
Fragen nicht, ob tausend schon hingegangen in den Wind.
Feucht' einmal mit Wein noch an, Schenke! diesen durst'gen Staub,
Eh der nicht'ge Erdensohn hingegangen in den Wind.
Schenke! wie ein Traum der Nacht, wie ein Schatten auf der Flur,
Ist das Leben mir entflohn, hingegangen in den Wind.
Hoffnungen, wie Spreu verweht, Wuensche, Rosendueften gleich,
Liebesseufzer ohne Lohn hingegangen in den Wind.
Falscher Schmeichelhauch der Huld, und des Holmes kraenkender,
Lieb' und Hass ist, Huld und Hohn, hingegangen in den Wind.
Las der Thraenen letzten Rest mich verweinen dieses Aug's,
Bis die letzte Spur davon hingegangen in den Wind.
Licht der Jugend! Schoenheitsbild! kaum erschienen bist du mir,
Glenzend wie die Lilienkron', hingegangen in den Wind.
Lebenszierde! Schmuck der Welt! herrlich prangend, bist du uns,
Schoen wie Salomonis Thron, hingegangen in den Wind.
Um dein Angedenken soll ewig spielen Freimunds Lied,
Bis davon der letzte Ton hingegangen in den Wind.

Fr. Rueckert.

CONTENTS.

	PAGE
I. Preface,	1-6
II. Instructions for Collecting, Breeding, Preparing, Packing for Transportation, etc.	
1. The Capturing of Day Butterflies (Rhopaloceres)—The Imple- ments Necessary,	7
2. The Modus Operandi of Using these Implements,	8-10
3. The Capturing of Night Butterflies or Moths (Heteroceres),	11, 12
4. Preparing for the Collection,	12, 13
5. Cabinets, &c., for containing Lepidoptera,	14, 15
6. Entomological Forceps,	15
7. Entomological Pins,	16
8. The Arranging of Examples in the Cabinet,	16, 17
9. Labeling the Examples,	17-19
10. On Cleaning Specimens,	19
11. On Relaxing and Expanding Specimens,	20
12. Repairing Specimens,	21
13. Museum Pests,	21
14. Packing and Transportation,	22, 23
15. Packing Specimens already expanded to place in the Collection, for Transmission to Foreign Parts; and as regards Foreign Express Cos., &c.,	24-28
16. The Rearing of Lepidoptera from the Egg and Caterpillar,	28-31
17. A few Final Remarks,	31, 32
III. Structure of Butterflies and Moths as shown on Plate 1, Figs. I-X,	33, 34
IV. The Terms and Abbreviations used in Works on Lepidoptera,	35-45

V. An Alphabetical and Explanatory List of Localities of which the Lepidopterous Fauna is more or less known,	46-66
VI. Catalogue of the American Macrolepidoptera North of Mexico,	67-192
VII. Corrigenda,	193, 194
VIII. Index to Catalogue of Macrolepidoptera, Rhopaloceres,	195-208
IX. Bibliography—List of Authors and their Works cited; elucidating the abbreviations used in the Catalogue; with short biographical or autobiographical notes,	209-283

PREFACE.

I would beg you friend not to pass this by, for, while that which follows may concern you the most, this is the part that relateth more particularly to myself and my wants, and it is human nature, you know, to think of ourselves first, last and always.

This Pamphlet is the result of numerous applications from beginners in many parts of the country, for information as to the methods of capturing, preserving, classifying, &c., Lepidoptera (Butterflies and Moths); and I have endeavored to give such notes as lay in my power, the result of a lifetime devoted to studying and collecting in this branch of Natural Science.

Almost the first thing the beginner wishes to know, after he has made a few captures and finds butterflies are not all alike, and not confined to two or three kinds, viz., little yellow ones and big red or black ones, is whether they have names and what those names are. In default of being able to obtain this information, ten to one he will give them names of his own invention, probably derived from some peculiarity, real or fancied, of form or colour. Then comes the desire to obtain literature on the subject; then to get specimens from other localities as soon as he becomes aware that those of Calabar are not the same as those of Kentucky; and so one thing leads to the other until, from the little acorn sown by chance, a goodly tree doth grow and flourish.

To give some plain information that will tend a little to lighten the labor of the beginner, (perhaps far away from good collections, libraries and congenial companions,) has been my object, as also to increase my correspondence with many students and collectors, both new and old, in various parts of this country as well as abroad, with whom I have not as yet had the pleasure of communicating.

I am not only anxious to secure correspondents in our own States and Territories, Canada and British America, but also in Mexico, Cuba, Brazil, New Granada, Surinam, China, Amoorland, India, Japan, Algiers, Sierra-Leone, South and East Africa, Madagascar, Australia, Celebes, Moluccas, &c.; and should this circular fall, perchance, into the hands of any one living in one or the other of these countries who is interested in the study of Butterflies (Lepidoptera), I would esteem it the greatest possible favour to receive a line on the subject.

Missionaries should do a vast deal if they would collect and transmit collections of these things; it is not at all necessary that they make the captures themselves; with a little instruction, natives will make very good collectors, and if a little pecuniary reward were in the perspective, they might accomplish wonders.

Soldiers stationed at various points in our Territories could also do good work in the cause of science by devoting an occasional leisure hour to collecting these beautiful objects; to any such who feel interest enough to collect and send me examples, I would be happy to render an equivalent in any way desired.

Any persons, here or in foreign countries, willing to correspond with me or to exchange examples of either indigenous or exotic species, will confer a great favour by sending me a line to that effect.

Also any one having undescribed or hitherto unfigured species, either butterflies or moths, native or exotic, will confer a great favour by loaning them for the purpose of illustration and description in the work on "Lepidoptera" which I am at present publishing in monthly parts; the greatest care will always be taken of all such examples intrusted to me, and they will be promptly returned as soon as described and figured, and a guarantee given to that effect whenever required; in such cases all credit, of course, will be duly given to the discoverer.

I will cheerfully and gratuitously identify specimens of butterflies and moths sent to me for that purpose; where persons have them in duplicate the best plan is to put numbers on the specimens sent, corresponding with those on the specimens in their collections, and I need only write the names after the numbers, thus: No. 7 is *Papilio Eurymedon*; you look at No. 7 in your collection and see in a moment that that is the species meant. Where you have only a single specimen, and wish it returned, it is of course unnecessary to affix any number, as I can write the name on a small slip of paper and stick it on the pin of the insect to be returned.

If I have in these pages failed to meet all the requirements of the case, I trust no one interested in the science will hesitate to write to me, for I am always equally as willing and glad to receive information as I am at all times to impart any, as far as lies within my power. It would be a churl indeed who would fail to answer an appeal from one who is traveling the same road that in bygone days he had traversed. I shall never forget when a little boy how my heart bounded when one day Prof. Jos. Leidy took me into the basement of the Philadelphia Academy of Natural Sciences, and pointing to the books on Entomology told me I had permission to examine their contents. Great God what a Heaven opened to me! my books on natural history previously were sundry of the "Peter Parley" suite; with what contempt I looked ever thereafter at the venerable Peter, as pictured on the first page, in knee breeches, surrounded by his numerous descendants who were supposed to be listening with eyes, mouths, ears all extended, to his accounts of vampires, cockroaches half a foot long, and the inevitable tarantula, that after biting people looked at them till they danced themselves to death; but alas, the once treasured "Peter Parley" books had served their time, and their place knew them no more. How I now reveled in the treasures of old Cramer, in Donovan, in the wonderful Thesaurus of Mad. Merian, in indefatigable Hubner, and in dust *ad libitum*. How I gazed wonder-struck on the great African Saturniidae depicted by the old authors, never dreaming that I should ever become the happy possessor of such treasures. Time in this respect has dealt kindly with me, many of Cramer's and Drury's species and many that Cramer and Drury doubtless never saw, now grace my cabinets, and are things of beauty and to me things of endless joy. Oh! never my friend, give a cold look or a short word to those who hunger after the truths of science; foolish questions may be asked you, and your patience at times taxed, but remember the time, far back, when you too were groping in the dark, vainly striving to find the path of which you could only catch in the distance the faintest glimmer. Remember how a hand was reached out to direct you aright from gloom and uncertainty to light and knowledge; show now your gratitude for that kindness, in the only way in your power, by

doing for some other one who is humbly striving, that which at a time long passed, was done for you. I have passed away from my subject entirely, but it seems as if it were but a few days since I was taken by the hand and led wondering, almost trembling into the presence of the grand old masters of natural science, those titans who laid the mighty ground work for all futurity to build upon. Lengths of erape were festooned across the Library, centred in the beak of a great condor, a tribute to the learning and worth of Dr. Morton, who had then just passed from his studies here to those in a land where alone perfect knowledge is attained; and further back peering out of the gloom, hideous in its frightful ugliness, was the head of Gorilla Caniceps, looming up like some Afrit or Gnome, the offspring of opium eating orientalism, and all around and above were books, books. How I wished I could but spend my whole existence there, and I recollect staggering under the weight of an old volume, heavier almost than myself, to where Dr. Zantzingier was sitting, and asking him where the name of the huge moth there depicted could be found, and how I stared when he told me that in those days they had not yet named them, and how I wondered why Adam had omitted naming such a vast number of beautiful things, or perhaps his records and catalogues were lost in the deluge, (this latter was the most satisfactory conclusion I could at that time arrive at.) And when new wonders revealed themselves at every page, how I wanted some one to talk to about them and to share my great happiness with me, but as I looked around I could see that all present were either reading or writing, perchance some one as he glanced up from his volume for a moment, met my enthusiastic gaze, and gave the little sickly-looking boy a kindly smile ere he again resumed his book. Oh, those were golden days! How I treasured up the first poor battered specimen of the European Peacock Butterfly, (*Vanessa Io.*) for which I paid 25 cents to a venerable taxidermist, who thought he might as well take my half-year's savings for it as to throw it away; how I wondered if by any earthly possibility I should ever get another, in case accident by fire or flood should happen to this one. Then the first sphinx I ever captured (*Lineata* I think was the species,) I kept him in a little box with a glass front, thinking that he would die before long, in which opinion he didn't appear in the least to agree with me, as his eyes shone like coals of fire night after night, and thinking it would overcome the little difference of opinion, I at last ran a pin through his body and impaled him on a board with the innocent idea that it would kill him, and the stupid thing wouldn't die after all, and my conscience smote me day by day, for a week nearly, as he persisted in refusing to give up the ghost; and at last my father, who couldn't bear to see the thing suffer any longer, unpinned it and despite the tears and appeals of his first-born, threw it into the great old-fashioned wood stove to get it out of its misery, as he said. This fixed that stove indelibly in my memory, it was a monstrous old thing, that either threw out a fearful heat or none whatever, no medium, if you let it burn, you had tolerably fair conceptions of Gehenna, if you lowered the fire, lo! it would sullenly die away; "Darling & Smith, Joanna Furnace," was the inscription borne by this household Moloch. Circumstances have many years later brought me to my present home, not many miles from "Joanna Furnace." Since then on many an occasion I have met the "Darling & Smith," and their children and their children's children, but it needs none of these to remind me of the ruin of my first great entomological capture, the recollection of which "only in death will die."

But I can almost imagine I hear my reader's pshaw of impatience at my

retrospective wanderings into the infant realm of bread-and-butter, nankeens, and credulity-in-perfection, and I may as well agree with my readers as my recollections of infancy will only cost more printer's ink without further enhancing the value of my pamphlet. The novelty of the first underwing moth (*Catocala Amatrix*) has passed away, nor can an old torn *Telea Polyphemus* longer hold me spell-bound, and as the years of man are few, and time goeth far too swiftly, I may as well at once get out of the shadowy past into the real present, and make the most of it by endeavoring to obtain from those interested in our beloved science, further material wherewith to feast my eyes, and to give me greater opportunity of acquiring knowledge of these most lovely of all of nature's works.

As I continually have need of great numbers of examples of different species, I am always glad to exchange with parties having duplicates of Moths or Butterflies, either native or exotic. Of the N. American species I can always use almost any number of perfect examples of all species, especially, *Lycaenidae*, *Hesperidae*, *Sphingidae*, *Bombycidae*, *Catocalidae* and the *Noctuæ* and *Geometrae* generally. Very rare species will be acceptable even if they be not perfect specimens, for of such we must be content to take the best we can get, without being too fastidious. I particularly want numbers of *Sphingidae*, (except *Deil. Lineata*, *S. 5-Maculata* and *S. Carolina*.) also *Arctidae*, any species, *Hem. Maia*, *Cith. Regalis*, *Eac. Imperialis*, *Act. Luna*, *Cal. Angulifera*, *Debis Portlandia*, *Neonympha Gemma*, *Neo. Areolatus*, *Catocala Coccinata*, *C. Viduata*, *C. Muliereula*, *C. Amasia*, *C. Relicta*, and in fact any others.

The following are a few particular desiderata of the N. American species, viz. :

Argynnis Nokomis, ♂ ♀
Argynnis Leto, ♀
Lycaena Regia,
Colias Edwardsii, ♀
Macroglossa Flavofasciata,
Sesia Axillaris,
Proserpinus Gaurae,
Darapsa Versicolor,

Arctia Parthenos,
Platysania Columbia,
Citheronia Sepulchralis,
Hepialus Purpurascens,
Catocala Stretchii,
Catocala Irene,
Catocala Zoe,
Catocala Consors.

For one or more of any of these I will give large exchanges or pay in money, as may be most agreeable.

I am also equally desirous of obtaining such exotics as I need from parties having duplicates from any locality.

The following species and varieties I would esteem above everything could I but obtain them; and I insert this, not with any expectation of speedily getting them, but knowing that they are in the world, I hope that perhaps after many days or years some one or other of them may come into my possession. I can only watch and wait, and beg that if any European friend is fortunate enough ever to possess any of the following in duplicate he would remember then that there is one here who has grown grey trying to obtain them, who will give any exchange or pay in cash for them their price. That I should die without beholding these would be, indeed, too hard a fate, but I will not stop to contemplate so desolate a prospect, but will proceed to name the peerless things, which are as follows:

Pap. Maaekii, Men.
 P. Raddei, Brem.
 Thais Honoratii, B.
 Parnassius Bremeri, Brem., ♀
 " Eversmannii, Men.
 " Apollonius, Ev.
 " Actius, Ev.
 " Delphius, Ev.
 " Tenedius, Ev.
 Pieris Chieranthi, Hb.
 Colias Aurora, Esp. ♀
 Vanessa Testuda, Esp.
 " Sardoia, Stg.
 " F. Album, Esp.

Pyrameis Elymi, Rbr.
 Chionobas Urda, Ev.
 " Sculda, Ev.
 Smerinthus Tartarinovii, Brem.
 " Maaekii, Brem.
 " Kindermannii, Ld.
 " Argus, Men.
 " Tremulae, Tr.
 " Dissimilis, Brem.
 Saturnia Lunulata, Brem.
 " Atlantica, Luc.
 " Artemis, Brem.

I am particularly anxious to obtain Varieties Hybrids, Hermaphrodites and other aberrant and abnormal forms for which I am always ready to negotiate liberally.

I would like very much to secure correspondents in Bogota, Peru, Surinam and Rio Janiero. Should this meet the eye of any one at any of the above mentioned places, or any other part of S. America, I would esteem it the greatest favour if they would do me the honour to communicate with me for purposes of exchange, &c.

In conclusion, I would repeat that I will always be delighted to hear from Lepidopterists in any part of the world, and any one so favouring me will receive the promptest attention.

And should any Entomologist find himself in my neighborhood, I trust he will not slight me by neglecting to call on me and allowing me the pleasure of showing him my collections.

I am always ready to identify, for any one, Lepidoptera, native or foreign, Moths or Butterflies.

Always ready to exchange specimens from our own or other lands.

Parties either in the United States, or other countries, having Lepidoptera or Coleoptera, of any country, that they would like to sell, would do well by placing them in my hands for that purpose.

Any persons wishing to purchase specimens, native or foreign, by sending lists of their desiderata, will be accommodated promptly and satisfactorily, prices in accordance with the rarity of the species and quantity desired. I will also furnish, when desired, Entomological Pins, Forceps, Setting Blocks, &c., &c., also procure books, pamphlets, &c., either new or out of print, whenever obtainable.

In writing, no matter how often you may have occasion to do so, always put under your signature your full address, No. of street or Post Office box; city or town; county, shire or province; State, Empire, Kingdom, Country; for it saves much time and trouble to have merely to glance at the bottom of the letter you have just answered, instead of having to hunt up some old letter to find the address, or else if you keep a list to have to go through the address of several hundred correspondents to find the one wanted. Always

direct as below, and if you reside out of the United States, instead of Pa. spell Pennsylvania in full and add U. S. of N. America. Thus endeth the preface to these pages of

Yours, truly,

HERMAN STRECKER,

Box 111 Reading P. O.,

Berks County,

Pa.

THE CAPTURING OF DAY BUTTERFLIES (RHOPALOCERES.)

THE IMPLEMENTS NECESSARY.

The first and of course principal thing necessary is a bag-net, (See Fig. XI, Plate I,) this can be made, to answer all practical purposes, as follows: the rim you can make by bending a piece of strong iron wire to form a hoop, twisting the two ends together and filing them sharp that they may be driven into the end of a handle, or, if the collector be inclined to luxuriousness, and does not wish to excite the interest of the intelligent mob by carrying so curious an implement through the highways on his journey to the glades and woods, he can have the ends soldered fast to a ferrule of sheet iron or tin, which can be put over the end of the handle when he gets without the city precincts; until that time the net can be carried under the coat, and the handle will serve conveniently for a walking stick, also as a preventative to the too close intimacy of canines. To the iron rim there should be affixed a bag made of fine strong gauze—mosquito netting from which the stiffening has been well washed will do; this bag should be eighteen to twenty inches long, and the bottom bound with a strip of muslin which is to be fastened to the iron rim, the diameter across this rim should be eleven or twelve inches. The handle should be about as long or a trifle longer than an ordinary walking-stick, if much longer it becomes unwieldy, though practice will make one perfect in anything, except living without food or sleep, and if a person should become handy with a long handle to the net, of course the advantage is obvious.

Nets are made in various other ways besides that described; in some the rim folds up in sections, in others it is made of steel and can be coiled up like a watch-spring, (see figs. XII, plate I,) all with the one object that they may be put in some big pocket to be out of sight until we are in the fields, for in this enlightened land a man can easily earn a reputation for lunacy if he lets it once be known that he is a butterfly hunter or any other kind of hunter except a money hunter; but if the collector be of moderate means, or of no means at all, as is the case with the writer, then a home-made one constructed as I have described will answer all purposes satisfactorily, and if he be ambitious to practice with a long handle, one of those fishing rods that are in sections, fitting into one another, will answer excellently.

Besides the net you should be provided with some strong pasteboard or light wooden boxes, lined at bottom with cork, of a size convenient to carry in the pocket; these boxes are to put your specimens in as fast as you catch them.

THE MODUS OPERANDI OF USING THESE IMPLEMENTS.

In catching butterflies the net can be put over them whilst sitting on flowers, bushes, &c., or with practice they can be secured whilst flying, by sweeping the net towards them and the moment they are in it giving it a quick turn that the upper end of the net which encloses the butterfly will hang over the rim, thereby preventing its escape before you have an opportunity to secure it. If the net is put over the butterfly whilst at rest it is well to bear in mind that in ninety-nine cases out of a hundred the butterfly always flies upwards, so that by taking the end of the net in the fingers and stretching it upwards, the insect instead of creeping or flying out below as it might do if it had decent instinct, will fly upwards to the end or point of the net where it will get imprisoned past all hope.

When they are in the net you can easily kill them by pressing the thorax between the thumb and index finger, (see fig. XIV, plate I,) the wings being always folded back; do this whilst they are in the net; in so doing the gauze of the net will be between your fingers and the butterfly, but that makes no difference; do not attempt to put your hand inside of the net and commence a chase of the captive which will end either in its escape, or what is equally as bad, in its tearing and ruining its beautiful wings; even in securing them through the net, in the manner I recommend, it requires some care and dexterity to do so without mutilating or rubbing off the scales which constitute the beauty of their colouring, but with a little practice it is easily done, for after all experience is the best of all teachers, though withal at times a little expensive.

The large butterflies, such as the swallow-tails, (*Papilio*), mother-of-pearls, (*Argynnis*), &c., &c., are easily killed, when in the net, with but little danger of damaging them; but there is a class of most interesting little fellows yecept Skippers, (*Hesperidae*), so called from their jerking, short flight, which when they get into the net keep up a most intolerable nuisance, not content to submit quietly to their fate, and with no appreciation of the fact that they are to serve the great ends of science, they do all to defeat those ends and exasperate the collector by flying and buzzing to a maddening extent; but, as says the German proverb, "there are more chains than bad dogs," the way to manage the little fellows is, the moment they are in the net, to hold it at both ends and stretch it across the knee so that the butterfly is gently pressed between the folds, then you can finish his existence by pressing the side of the thorax uppermost, the other side being against your leg or knee, with your thumb nail; or what is a still better plan is to have with you a small glass jar as wide, or nearly so, at mouth as at bottom; it should be about 6 inches high and 3 in diameter (see fig. XIII, plate I,) which is a size convenient to carry in a lunch-coat pocket; this jar should have a tin cover or top to it, and in the bottom you should have a lump of raw cotton saturated with chloroform; when you have the small butterfly (*Hesperia*) in the net, grasp the folds in which he is enclosed in a lump in your hand, and hold them over, or if possible push them into the mouth of the jar; the odor of the chloroform will produce a state of repose in the unruly butterfly in which condition you can take him out of the net and kill by pressure, but I would advise you not to delay the killing too long, for it takes but a comparatively short time for them to recover from the effects of the drug—more tenacious are they of their worthless lives than are we greater human things.

Besides the butterflies proper there are various moths (Heterocera) that also fly in day time, among them the Humming-bird Hawk-moths (*Sesia Thysbe*, *S. diffinis*, *S. Buffaloensis*, &c.); these must be treated in capturing the same way as the Hesperidae but as they are large waisted things pressure would spoil their beauty, therefore the killing is done by inserting a needle dipped in oxalic acid or Cyanide of Potash, thrusting it into the head, passing it lengthwise through the body once or twice, and they will fold their wings and silently go to rest.

In putting them in the temporary boxes (carried for the purpose) after they are killed, you can put as many on one pin as it will conveniently hold, but with the exception of the Hesperidae and Humming-bird Hawk-moths, all so far alluded to should be temporarily pinned through the side with the wings closed, which preserves the upper and more susceptible surface from being rubbed or scratched by the one pinned above it, as perhaps might accidentally happen if life were not quite extinct.

The Hesperidae and smaller butterflies as well as all night butterflies, (of which more hereafter,) should be at once pinned through the middle of the thorax, from the back, and whenever practicable only one on each pin.

The best time of the day for collecting is from early morning, when they may be picked off the leaves whilst their wings are yet heavy with dew, until two o'clock P. M., of course on cloudy, windy or rainy days, you will get nothing but disappointment and discomfort for your pains, but on a pleasant June, July or August day, with a clear sun and no air stirring, you may reap a rich harvest. If a desirable butterfly be hovering near you, it is ever better not to be too rash, for if you stand still he will flit here and there around you until finally he will come within the sweep of your net or alight, then if you don't secure him you scarcely deserve to, that's all, but to give chase and try to run them down under a July sun, with the occasional slight obstacles of fences, creeks, rocks, logs, farmers' dogs and farmers' boys, (just as bad,) and to find your expected prey wind up snugly in a grain or clover field within sight of the farmer's homestead, farmer's self in shirt sleeves on porch, farmer's shot-gun within easy reach of farmer's fingers, forms a combination of circumstances by no means conducive to one's respecting the third commandment.

The best localities for finding butterflies are gardens in the country, marshes and meadows along the edges of woods, and above all wherever plenty of thistles and sumac are growing, but unfortunately these valuable plants are continually doomed to destruction whenever detected, because they will take possession of ground that some unlettered boor wants for cereals, just as if we couldn't get our wheat from California if the crops failed here, or if there wasn't room enough to grow it; why, you can buy California flour here any-time at the same price as that ground from wheat raised east. But it is useless to complain, we must, alas, take things as they are, not as we would make them, as the millenium is still a day or two distant.

Occasionally fine butterflies may be captured sitting in roads on the mud, especially if it be full of little puddles of water. I have often taken fine Swallow-tails, *Limenitis*, &c., in such positions.

Cow-dung, decayed fish or a dead snake have a powerful attraction; I have often taken three or four at once that were enjoying themselves at such attractive objects.

Do not go on hills in dry, stony woods for butterflies; bear in mind always that swamps, meadows, woods near such, flower and vegetable gardens in the country, and pieces of waste land with creeks running through

and on which are growing thistles, sumac, blackberry bushes, &c., are their favorite resorts, and there you will be rewarded for your pains. But alas, each year these Paradisiacal spots become more rare; it has cut me to the soul many a time to see just such places burnt over, strewed with lime and ploughed up to raise wheat to make bread, to keep the worthless souls in the worthless bodies of worthless beings which live and die without leaving the slightest vestige of a footstep "on the sands of time."

I would further add that for these excursions a coat made of some light woolen material is preferable: linen coats are abominable, as the suspenders, by the aid of perspiration, adorn the back of that garment with a St. Andrew's cross, which, though of no moment to our country cousins, is by no means desirable as we get within the city limits on our return homeward, if it be still daylight. This coat should be plentifully supplied with pockets, two inside breast-pockets, one of great capacity to put the net, rim and all in, if you don't want to carry it in your hand, the other for your handkerchief, segar-case, small glass jar, &c.; it should also have two outside pockets near bottom of coat, the one to put your collecting box in, and the other for lunch, which latter, although when you start you think your breakfast will last all day, becomes of vital importance about the time the sun is directly over your head, when you will devour every crumb and, like poor Oliver, cry for more. Carry a little India Rubber, leather or tin drinking-cup with you but don't put much water inside of you—it is deleterious during these tramps; once give way to the temptation of guzzling creek water and by the time you are ready to drag yourself home you will be as near a gone case of foundering as any undertaker need delight to see. If you feel thirsty smoke segars, if you can't smoke moisten your lips with a little lemon-juice or whisky, but don't moisten with too much of the latter so that the last seen of you is adorning the corner of some fence, with the flies hovering around your mouth trying to ascertain whether it was "Mountain Dew" or "Lavan's best proof" that has put you in a position for your friends to be ashamed of you, sir.

It is always better on entomological excursions to go alone, but if you must have a companion let him be one likewise interested in the same pursuit, and when you arrive at the hunting grounds separate with the understanding that you are not to meet until the time arrives for returning home, and if your friend has a dog, (which of course he has), which miserable brute must of course accompany him on all possible and impossible occasions, (for who ever owned one of those wretched curs that did not have it forever walking at his own heels and snarling at every body else's), then in self-defence, if you want to take a single butterfly that day, follow my advice—put as great a distance between yourself and your friend as possible. By the way, in order to ward off the effects of the sun's rays on yourself, always adopt the old plan of putting in your hat some large leaves (oak, chestnut, &c.) which have been previously immersed in water; this is a standard preventive of sun-stroke, nor will any one suffer from the effects of the sun's heat striking on the head if he adopts this plan; the leaves should be from time to time dipped in water as they become too dry.

THE CAPTURING OF NIGHT BUTTERFLIES OR MOTHS (HETEROCERES).

For these a different mode is necessary; a glass jar like the one used in taking *Hesperidae*, but if a little wider it will be no disadvantage, should be provided; in the bottom of this should be placed a number of pieces of Cyanide of Potash, over these plaster of Paris mixed with water to the consistency of molasses, should be poured to the depth of an inch or so until the Cyanide is just about covered; in a short time the plaster will become set and the bottle or jar thus prepared will be fit for use for a long time. During the day many small moths may be detected on the underside of leaves, in shady corners on rocks, under the eaves of out-houses, &c.; when one is detected hold the jar over him close to the object on which he is sitting, and he will become overpowered by the fumes of the drug and drop into the jar from whence he may be taken out and killed. This mode is the best that can be used for taking *Catocalas*; these fine moths during the day sit on the trunks of trees, and are scarcely distinguishable from the bark thereof, as their grey lichen-looking upper wings entirely conceal the splendor of the scarlet, or yellow under wings, but by looking carefully on the trunks of the trees from the roots up to as high as you can reach you may detect their presence, then cautiously and carefully clap the poisoned jar over them; the noise caused by your tramping over the dead leaves will often rouse them from their hiding places, and when they again alight you will have opportunity to secure them. The *Catocalae* are always in much demand for exchanging, and whenever a species is present you may look for it in numbers; they occur in oak and chestnut woods, &c., some species are found where willows are abundant; all are conspicuous beautiful insects.

For night collecting a preparation of rum and sugar, or beer and sugar mixed to the consistency of sirup should be painted in patches and strips on the trunks of trees, and other suitable places here and there but not laid on too thick; also you may soak pieces of dried apples and string them with a darning needle on pieces of twine and festoon the fences, trunks of trees and other places with them, this mess in either instance has a wonderful attraction for *Noctuae* and many will fly by that means be obtained which otherwise never would have the fortune to grace the naturalist's cabinet; the moths will fly to, and alight on this sweet and delusive mixture and by directing the light of a lantern on them and using your poisoned jar you can make many captures. It is not necessary to take every one out of the jar as fast as it falls in, get as many as it will hold without spilling, and then when the novelty has ceased, go into your quarters at some adjacent farm house and take them out at your leisure, in comfort. Do not be disgusted if your first night's experiment results in nothing but an army of ants or hundred-legged-bugs, but persevere, for though the first or second or third night even may result in nothing, the fourth may pay for all of them; warm dark damp nights are the most favourable, windy ones ain't worth anything; but as in everything else experience will perfect the knowledge of which I can give you only the rudiments.

If arsenic be mixed with the rum and sugar, it will facilitate matters, but in that case an old sheet should be spread on the ground beneath the tree-trunk, fence or other object that is anointed with the potion, to receive those which fall overcome by the poison.

Many moths may be captured in the evening in the country when they fly into the open windows attracted by your light, clap your jar over them as they

alight on the walls or table and secure them, some of these small things are of great rarity, and it is among these we must look for new and hitherto unknown kinds, as the larger and more conspicuous ones, are those to which the most attention has heretofore been given.

And finally in collecting, always bear the following directions in mind :

1st. Always retain a poor or damaged example until you get a better one of the same kind.

2d. Collect all kinds, large and small, beautiful and ugly, scarce and common, those that fly by night (moths) as well as those that fly by day.

3d. Get as many different kinds as possible.

4th. Get as many of each kind as possible.

5th. Recollect that no matter how common a species may be in one locality, there are other places where it is not found at all, and where naturalists would be glad to get it.

6th. Always endeavor to secure as many of the night butterflies (moths) as possible, both large and small, for these have been the most neglected.

7th. Try your utmost to induce your friends in other localities to collect, for many that may not be found in your neighborhood, may occur in theirs; and bear in mind that every fifty miles produces variation in many species.

8th. Should any species be taken in copulation make note of the fact, as in some instances the sexes are very dissimilar, and this is generally a sure way of knowing if they be sexes of the same insect.

9th. Look particularly for varieties and aberrant forms of various species, there occur sometimes individuals presenting differences, and in some instances to such an extent as to almost force us to believe they are new species, as is the case with the variety of *Papilio Asterius* called *P. Calverleyi*, of *Argynnis Idalia* called *A. Ashtaroth*, of *Vanessa antiopa* called *V. Hygiaca* (*V. Lintnerii*, Fitch), of *Pyrameis cardui* called *P. Elymi*, &c., &c.

10th. Bear it in mind that some species appear in abundance some years, whilst in others scarcely one will be obtained; so in seasons of plenty prepare for dearth, and capture all you can; for should you get a thousand or more of a kind, it is a small number to supply the numerous entomologists in different parts of the world who may want them.

PREPARING FOR THE COLLECTION.

After you have returned home from the fields and fens with your accumulated treasures, and have recruited yourself with food, rest you must not, (for if you think of lying down for a few minutes or a half an hour, the demon of inertia will seize you, and your butterflies will lay till some other day,) you can immediately expand the larger examples; the smaller ones are probably too much dried to attempt them at present, of which more anon; for the purpose of expanding and drying your specimens you must have setting-blocks or boards of various sizes (see fig. I, plate II,) to suit the different examples; these blocks should be made of $\frac{3}{4}$ inch wood, with a groove cut in the middle about $\frac{3}{8}$ to $\frac{1}{2}$ inch deep for the large butterflies and moths, and $\frac{1}{4}$ inch for the smaller ones; the block should be thickest at the two outer edges and a little

thinner in the middle at the groove, so that the butterflies' wings will stand, when dried, a little higher at the apices than at the base near the body; in course of time the wings will fall a little anyhow, and if they be set exactly horizontal at first, when they sink they will be below level, which finds no favour in the eyes of any except the English Lepidopterists who always set their examples with the wings deflexed. In the centre of the groove there should be a couple of little gimlet holes, about $\frac{1}{4}$ inch apart, bored through the block; behind these holes, on the back of the block, should be glued or tacked a strip of cork, around which (cork) should be tied a piece of coarse, soft thread long enough to wrap eight or ten times around the block from top to bottom; now, having described the block, I will tell you what to do with it if your own sagacity (for which I would not give much if you were born in Berks County, Penna.) has not already pointed out the method of using it. After seeing that the insect-pin is properly inserted in the middle of the thorax of the butterfly or moth, you then pass the point through the gimlet hole in centre of block into the cork fastened behind it where it will stick, of course; then take the thread (that is fastened to the cork behind) and draw it close over the top of the block, and close, but not tight, over the wings of your specimen facing your left hand, then pass it behind, across the back of the block, over the top and down the front over the wings facing your right hand, and secure the string in a notch or slit made by a pen-knife on lower edge of block on side facing your right hand; your butterfly is now secure, but his wings are not spread evenly; one is nearer, probably, the top edge of block than the other, one is nearer the body, perhaps, than the other; to arrange this take an insect pin and insert it in the forewing right behind the costa, (the great front edge of the wing) one-third the whole length of the wing from the body, and draw the wing to the right position and keep it there by sticking (without withdrawing first) the pin into the block; do the same thing with the opposite forewing, then with one of the hind wings, then with the last hind wing, thus you will have the four wings properly placed and secured by the four pins sticking through them into the wood (see fig. E, plate II); then unloosen and unwrap the string on the side facing your right hand and wrap it four times, about, around the side of the block, butterflies' wings and all, facing your left hand, then pass it crosswise behind the block to the side facing your right hand, then wrap it four times or so around that side, butterflies' wings and all, and secure the end in the slit or notch in edge of block (see fig. F, plate II); then take out the four pins that have so far secured the wings, as they have done their work and are now of no further use in that position, then stand your block aside in a safe place, not exposed to much sunlight, to dry. If a small or medium sized butterfly it will take a week to completely dry it that the wings will permanently retain their position, if a large butterfly, moth or Sphinx it will take from two to three weeks to attain that end.

The above method, with strings, will do admirably for day butterflies and the smaller moths, but for large moths, which have heavy fur on them and thick, downy wings, pieces of card board must be laid across the wings and secured with a pin in the block above the upper wing and below the lower one (see fig. G, plate II); each card board should be large enough to cover the two wings on one side, from where they join the body to their extremities, for if part of the wing only be covered there will be a depressed line cut in the fur across the wings by the edge of the card.

What I have tried to make clear I might have told you my good reader, by word of mouth in a few minutes, but as that was impossible, owing to my not having the attribute of ubiquitousness, I still hope I have made myself intelligible, but different species will want different little arrangements, which will suggest themselves as necessity requires their use.

CABINETS, &c., FOR CONTAINING LEPIDOPTERA.

Various Entomologists employ different kinds of receptacles for their examples.

The plan adopted by myself (see fig. II, A, plate II,) is to arrange them in drawers which are contained in cabinets; the size of the drawers which I use are 19 x 16 inches in the clear and $1\frac{3}{4}$ inches deep, they are made of $\frac{1}{2}$ inch stuff with soft pine bottoms, of course if you are wealthy (which few naturalists in this country are) you can line the bottom of your drawers with cork which of course is an advantage, but soft pine will answer every purpose. These drawers have the groove, by which they slide into their places in the cabinets, in the middle of the side, which obviates the necessity of having strips between each drawer and thereby losing space, in the height of the cabinets, that would hold a couple of more drawers; in the tops of these drawers fit narrow walnut or other hard wood frames with glasses puttied into them, (see fig. II, C, plate II,) these are removed by merely lifting up and laying aside when necessary; I have three rows of these drawers in each cabinet, the short sides of the drawers being its front, that is when in the cabinet they are longer from front to back than they are wide. I paint the top edges of the drawer, where the frame and glass fit in, with creosote occasionally, say whenever I have necessity to work at that drawer I put some on, with a large soft hair pencil or brush, the drug permeates the wood, and keeps away the *Dermestes* and *Anthrenus*, the pests so destructive to collections of objects of natural history. The drawers should be papered inside with white paper, such as periodicals and magazines are printed on does very well, it costs about 60 cents a quire, and that quantity will paper at least fifty drawers.

The above plan of receptacle I consider the very best, and it is the one generally adopted for great collections all over the world.

But the drawers should be made to slide into their places very easily; give them a little play so that you may, when necessary, change them about; thus, we will say drawer No. 20 is the last containing swallow tails (*Papilio*) and drawer 21 is the first containing the white butterflies (*Pieris*). Now you get an accession in the *Papilio*, but your last drawer No. 20, devoted to that genus is full, well, instead of having to unpin your whole collection to get drawer No. 21 empty for the occupaney of the new ones, you merely take the last drawer in your cabinet, (which is empty) and pin your new examples in it, you then put the drawer that is next to the last one in the place from whence you took the latter, and the drawer above that in its place and so on until you come to drawer No. 21 which you will then put in the place of drawer No. 22 and in the space above formerly occupied by drawer 21, you now put in the drawer which was the last in your cabinet and in which you have pinned

your new *Papilio*, and the only trouble you had was to put your drawers, from No. 21 to the last, one drawer further down which of course is a pleasure, for as you pull each one out to change it to its place below you at the same time have the delight of feasting your eyes on its contents.

Another plan of receptacle is to have boxes made in the form of books about 12 x 9 inches in the clear, and each half $1\frac{3}{8}$ inches deep in the clear, the two are joined together at the backs by a piece of stout canvas being glued over it, which serves as a hinge; when closed the clear space is $2\frac{3}{4}$ inches and the specimens can be pinned on both sides; the superficial space thus occupied in a double box of above size is 18 x 12 inches; the edges where they meet can be painted occasionally with creosote to keep out destructive vermin.

The principal objection to this plan of box is that if the greatest care be not taken always in opening and shutting, the force of the air is apt to loosen the wings of the examples, especially of the smaller frailer ones.

Others have the bottoms of the drawers, in cabinets, glass as well as the top, and with little bits of cork gummed to the glass to pin the insects on, or else narrow strips of same material or soft wood fastened in, for same purpose, from one end of the drawer to the other; this method has the advantage of allowing you to turn the box around to see the under surface of your examples, but the disadvantage when you want to add new material is fearful; this plan is only good for a finished collection where the owner intends to add nothing more, or for a local collection where you know just how many species you can expect to get and can leave space for each accordingly.

But whatever manner of box or drawer is used, the great desiderata to be obtained is to keep them out of the action of sunlight and dust, also do not keep them in a damp place which will engender mould, which ruins Lepidopterous examples past all redemption.

ENTOMOLOGICAL FORCEPS.

Having now your cabinet you will want forceps with which to pin your examples into the drawers; these are absolutely indispensable; I would sooner do without my spectacles than my forceps, and the only decent ones I have ever met with in this country are those made by Blake & Co., No. 212 Chester Street, Philadelphia, Pa.; a pair of their make will last you a lifetime, and once in your hands you would as soon think of doing without your night-cap as of trying to work in your cabinet without them; Mr. Blake, himself, is a practical Entomologist and well known through his writings on the N. Am. Mutilidae, &c.

ENTOMOLOGICAL PINS

are made of all requisite thicknesses, the German pins, which run from Nos. 1 to 5, are the most extensively used and are, without doubt, the best; they range in prices from \$1.00 to \$1.50 per thousand.

The pins used by English Entomologists are much shorter, and the use of them is confined almost exclusively to the naturalists of that nation.

No. 3 German pins are best size for general use as they will do for a small fly and are strong enough for quite a large one; but with Nos. 2, 3 and 4 you are fixed for any size of Lepidoptera.

THE ARRANGING OF EXAMPLES IN THE CABINET.

First see that the examples are spread or expanded in a uniform style, wings of all in same position and all the same height on the pin, and not too high or too low, so that one-third of the pin shows above the insect.

In pinning the insect into the drawer or box, seize the pin, a little above the point, with the forceps which you hold in your right hand, (unless you be left-handed, then vice versa), at the same time whilst pressing the pin into the bottom of box with the forceps, hold the tip of the index finger of left hand gently on the head of the pin until it is firmly fixed and the forceps withdrawn; this will cause the pin to stand perpendicular, for if you fasten it without holding your finger on the head of the pin you may find that when you remove the forceps your specimen will be leaning to the one side or other.

You begin of course to place your examples at the upper corner facing your left hand; some pin them in single rows up and down, for example we begin with *Papilio Philenor*, male, right below him we put the female, then below her the next species, *Papilio Turnus*, male and its female, and so on to the end of the row, and then begin the next, and so on; of Lepidoptera, of the size of those just mentioned, drawers like those previously described will hold four rows, of *Vanessans*, *Coliades*, &c., six rows, and of *Lycanidae*, &c., eight to ten rows. This plan is economical as regards space, but terribly troublesome, when you get new species which must be wedged in between some of those already in, and necessitates the unpinning of half a drawer or box perhaps, with beginners this may be pleasant, with old hands it is simply waste of time.

The plan which I have adopted and carried out in a collection, embracing some forty thousand examples, is as follows: I place them in double rows, thus, we will take for example that group of *Pieris* of which *P. Protodice* is the common American representative, I have placed first a male of *P. Protodice* then right aside of it the female, then I place another male, with the under-surface turned up, directly under the first male, then a female showing the under-surface under the first female, then a male of *P. vernalis* with its female aside of it and below each a reversed specimen and so on, the following will illustrate plainly my plan.

Pieris Protodice, male.	P. Protodice, female.
“ “ male, reversed.	“ “ female, reversed.
Pieris Vernalis, male.	P. Vernalis, female.
“ “ male, reversed.	“ “ female, reversed.
Pieris Callidice, male.	P. Callidice, female.
“ “ male, reversed.	“ “ female, reversed.

and so on, *ad libitum*, if you have the specimens.

If I have but three examples of a species I place them thus :

Pieris Autodice, male. P. Autodice, female.
P. Autodice, male, reversed.

putting the third, male or female as it may be, in the middle, below the two upper ones. When I acquire the fourth example I remove the third, and place it directly under the upper one of its own sex, and the newly-acquired fourth one under the other upper example.

If I have only a single example of a species I place it in the middle between the two rows, like *P. Leucodice* below :

Pieris Callidice, male. P. Callidice, female.
P. Leucodice, male.
Pieris Autodice, male. P. Autodice, female.

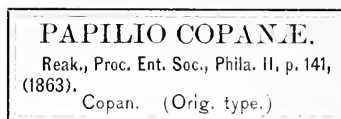
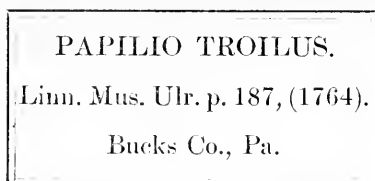
When I get its mate I push the one I already have directly under the fly above, and put the new one aside of it.

This plan shows the whole insect—male, female, upper and under surface—at a glance, and besides gives room for additions, for if I get an example of another species of the *Pieris* near *P. Leucodice*, before I get the second *Leucodice*, I can temporarily let it occupy the position that the future *P. Leucodice* will have, until I have the good fortune to obtain the latter.

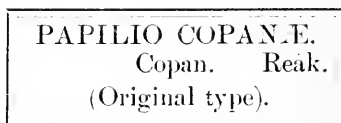
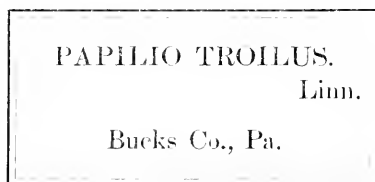
Of course, if you have varieties of the same species, or aberrant forms, or monstrosities, you place them under the examples of the normal form of whatever species they may have sprung from. Also, you can place below them the preserved larva, chrysalids, as well as any parasites that infest the species, so far as you may be able to obtain them.

LABELING THE EXAMPLES,

which is of incalculable importance, can be done best as follows : you should have the labels of white card-board with plain black borders printed on them, and three or four dotted lines within ; on these you write, or print with pen and ink, the name, author's name, synonyms when necessary, name of work in which the species was first described, locality where found, and if it be a type specimen state the fact. Here are examples :

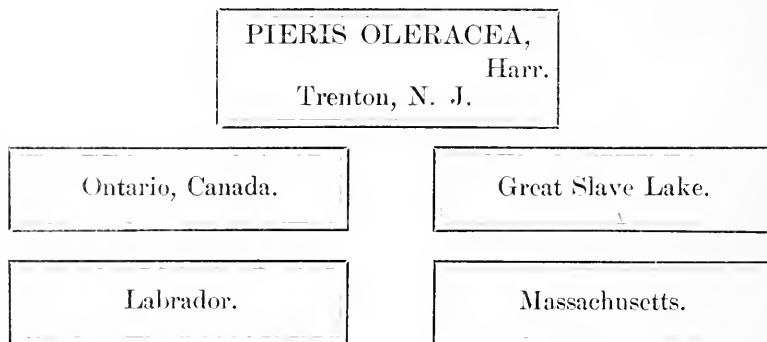


The above is the most exhaustive way of labeling, but will save you much future trouble ; you may, however, shorten it by leaving out the work in which it was first described, thus :



Always remember that the name of the author is as necessary as that of the species.

If you don't know the name at all, never neglect to state the locality ; when you have the same species from different localities you can have smaller labels for each locality, only using the large label with the name for the first two of a species, and giving each of the other localities one of the smaller labels, thus :



These labels are fastened to the bottom of the drawer or box, directly above the specimens of the insect designated, by a short pin at each end.

Many Lepidopterists collect the species of their own country or locality only, others, those having the greatest collections, place the species from all countries together, which I hold to be the only proper way, as nature has not set county lines in such matters, and the species of all parts of the world are but links in the great chain, and by omitting those of some particular country you break the chain, and must produce discordancy. In my own collection, before referred to, I have placed those from all countries together, thus: in the orange-colored forms of the *Coliades* I have them native and foreign arranged in the following manner:

Colias Eurydice, ♂♀, Cal.	C. Chrysotheme, ♂♀, Hungary.
“ Cerbera, ♀♂, Bogota.	“ Electra, ♂♀, Cape Good Hope.
“ Cæsonia, ♂♀, Georgia, &c.	“ ? Fieldii, ♂, Himalaya.
“ Aurora, ♂, Amoorland.	“ Edusa, ♂♀, Germany, &c.
“ Eurytheme, ♂♀, Cal.	“ var. Helice, Germany, &c.
“ var. Kewaydin, ♂♀, Cal.	“ Aurorina, ♂♀, Armenia.
“ var. Ariadne, ♂♀, Cal.	“ var. Libanotica, ♂♀, Persia.
“ Vauterii, ♂, Chili.	“ var. Heldreichii, ♂, Greece.
“ Pyrothoe, ♂♀, Brazil.	“ Sagartia, ♂♀, Persia.
“ Erythrogrammus, ♂♀ Bogota.	“ Hecla, ♂♀, Greenland.
“ Myrmidone, ♂♀, Hungary	“ Meadii, ♂♀, Colorado.

—and so on, group after group, just as they seem nearest to each other in structure, &c., regardless of locality.

It is never amiss to have the same species represented by examples from various localities, as it is vastly interesting to see what changes may be produced by climatic and other causes, as for instance *Linemitis Missippus*, which is red in the northern States, the same colour as *Danaïs Eriippus*, is very dark brown almost blackish in Florida, where it resembles another species of *Danaïs* called *Berenice*; and the female of the Central American form of *Papilio Asterius* has a broad sub-marginal band or row of yellow spots on all the wings like the male, whilst the female in the common United-States form is almost altogether devoid of these spots; in the female of the same species from Labrador the yellow band is broader even than in those from Central America, which is still more curious when we consider that in those found in the United States, between the two extremes of Labrador and Central America, the female is destitute of the macular band, or has it represented only by a few small, half-obsolete spots.

ON CLEANING SPECIMENS.

Sometimes a butterfly or moth will be found to be more or less greased on body and wings, always starting at body and extending over the wings more or less, defacing and altogether hiding their beauty. This may be entirely removed by the following process: get a wide glass jar, need not be very deep, put a thin slab of cork in the bottom, the cork should be a trifle larger than the inside of the jar, so that it will take a little gentle squeezing to get it down to the bottom tight that it cannot move; pour the best refined benzine into the jar to the depth of two inches or so, and pin your greasy specimen on the cork in the bottom of jar so that it will be entirely covered with the benzine, then cover the top of jar, and let it rest a longer or shorter time—a half an hour generally suffices, but if very bad they need a longer time; when you think the specimen was in long enough, take it carefully out by the pin, and pin it on a piece of cork, stand it in some safe place where it ain't dusty, and do not be frightened at the desolate, slunk appearance of your specimen, for no matter how bad it looks, depend on it, it will come all right; just let it alone ten or fifteen minutes, and you will find it beautiful, brilliant, and

all the grease gone, or, if any traces of the latter still remain, give it another benzine bath; should the wings, after it is dry and the benzine evaporated, appear a little curled or bent, put it into the slack pot (hereafter described) from twelve to twenty-four hours, or longer if necessary, then fasten on setting block with card board stretched across the wings; let it remain on the block three or four days, then take it off and pin in its place in the cabinet, and you will have no cause to complain of the result of your labour.

ON RELAXING AND EXPANDING SPECIMENS.

Where specimens are received in papers, with the wings folded, or badly set, or on pins with the wings pointing four ways for Sunday, they should be treated in the following manner:

A large earthen pot is needed, what the housewife calls a butter-pot is the best; this is about 10 inches in diameter and 6 or 7 deep, and has a lid to cover it; of course if you can't get this kind any other crockery-ware thing will do, but this is the most convenient in size and shape, being of as great diameter at bottom as at top. Into this you put 2 or $2\frac{1}{2}$ inches of clean white sea sand, kept by the grocers and called silver sand; do not get it too fine, it is better a little coarse, that which is used to saw marble is the best. Pour in water enough to permeate through and through it, but not enough to make a slop or to stand on top of the sand,* then smooth the sand over and lay thereon two thicknesses of clean white paper, (don't use paper that is printed on). On this you lay or pin the examples that need softening, then put a couple of pieces of paper over the top of the jar or pot outside, and put the lid on, working it around a little that it squeezes the paper into the joint and fits tight, this paper under the lid is to make a tight joint, as the lids of crockery articles are not proverbially tight fitting; stand the pot in a dry, cool place, (but not where it is cold enough to freeze); if it be too warm the examples are liable to mould, and to relieve specimens of Lepidoptera of mould, without injuring them, is impossible; a piece of gum camphor laid in the pot, or a small vial of creosote stuck in it in the sand will act as a partial preventive to mould. Let your pot stand twenty-four hours in peace, don't lift the lid and look in every half hour, but when twenty-four hours have elapsed, look at the specimens, try gently if the wings can be moved in any position; if easily moved, take the examples out of the pot and expand on setting blocks, according to the same directions previously given for expanding and drying specimens freshly caught; but with these dried specimens, it is not necessary that they remain on the setting blocks more than two or three days to be fully dried and fit for the cabinet; in fact, with the smaller ones you will have to be quick while fixing them on the blocks lest they dry before they ought to; it is best to set them on the blocks in a cool room, a damp cellar would be excellent to expand such specimens in, but not to let them stand in after they are expanded; to dry properly they should be put in a dry moderately cool room in a closet with gauze over the doors or in a skeleton box covered with gauze or else merely set on edge

*You need not afterwards add any more water for several months.

on a table in a room where there is not much dust likely to be stirred up; if the specimens get dusty they can be gently brushed off with a very soft long-haired camels-hair pencil, but be careful you don't brush the antennae and little pieces out of the edges of the wings along with it.

REPAIRING SPECIMENS.

Sometimes in transportation, or from other causes valuable specimens become more or less broken, and in too unsightly a condition to be fit for the cabinet, but, with care and patience, this can be in a great measure remedied.

The best adhesive to be used is gum tragacanth mixed with water until it is of the consistency of jelly; this adheres to the wings, dries quickly, and is by far the best thing for the purpose that can be used; don't mix gum arabic with it; and if it does smell a little bad after standing a week or two that don't hurt it, it will stick just as well as before nature perfumed it.

If the wings of your specimen be split or pieces torn out, you can, with a small soft hair-pencil or brush, put a little of the dissolved gum tragacanth along the parts to be joined, and they will close together; if the piece be entirely torn out, it is then necessary to back it up by pasting against the under surface a piece of wing taken from a worthless specimen of the same species, or in default of that something that will come very close to it; it takes practice to do this neatly, and the exigencies of the case will at times tax your ingenuity to its utmost.

Of course the less repairing that is done to specimens the better, but where the preservation from further injury depends in its being fixed, we had better take our choice of two evils, and select the least.

Never use glue; or gum arabic, but always gum tragacanth, which is the best; starch or even common flour paste is immeasurably to be preferred to glue, to use this latter is simply barbarous.

MUSEUM PESTS.

When *Anthrenus* or *Dermestes* (the small beetles that infest collections of Natural History) are in a specimen, their presence may be detected by a fine dust on the bottom of the box around the pin on which the infected insect is; as soon as this is discovered take out the specimen with the forceps, and whilst holding the pin tight strike the forceps a couple of smart raps on the table; this will dislodge the robber, and you then put an end to his baneful existence in any way that your ingenuity or the magnitude of the offence may suggest. A constant surveillance should be kept over a collection, anointing the drawers with creosote, &c., &c. On getting new examples from other parties, it is well first to put them in another box, that is strongly poisoned with creosote; let them remain there tightly closed a week or so before placing them finally in your collection.

PACKING AND TRANSPORTATION.

As no Entomologist is able to collect even in all parts of his own fatherland, let alone in foreign parts, he is obliged to get examples from other localities by exchanging duplicate examples of those found in his own neighborhood, and by purchasing; and, inasmuch as one fine, perfect specimen is worth any number of damaged or defective ones, it is requisite to pay particular attention to the packing for transportation.

We will begin first with the day butterflies (*Rhopaloceres*); these may be packed singly in papers without expanding; in using this method the butterfly should have the wings folded back, in the position that they occupy when at rest, and should then be put in a paper folded in a three cornered envelope;* the locality and date of capture may be written on this envelope with lead pencil before putting the specimen in it; the paper used should be soft, not too stiff or heavy, and care should be taken, in placing the butterfly in, that its wings or feelers (antennæ) do not get caught in the folds of the paper, and consequently broken or scratched. The papers containing the butterflies may then be put in a flat segar-box—as many as it will hold; that is, they may be placed in the box carefully until it is a little over full, so that in closing the lid down gently it will press them down and by that means they will not shuffle about loosely in the box, but care should be taken that it be not, on the contrary, too full, lest the pressure in closing the box might break them; keep a just medium; before fastening the lid down put in a little gum-camphor, in fine pieces or dust, (a large lump would damage the specimens) to keep vermin away until your box reaches its destination, and thereby probably save the contents from destruction; in the absence of camphor, tobacco dust, wild sage or other strong-smelling herbs will do as a substitute.

After the lid is down, it should be secured by having strong paper strips pasted over the edges all around, and if the side and bottom edges are also pasted over with paper it will be an improvement in the way of keeping the contents safe from the access of vermin; if the paper used be such as is impervious to damp, so much the better, common boiled flour paste is better than glue or gum. Butterflies done up in this way need no further packing, and may be sent by mail to any part of the United States or possessions, at letter rates of postage, 3 cents per oz. or fraction thereof. If the box be not pasted shut, but only tied tight with strong twine, and does not exceed 12 oz. in weight, it will go at sample parcel rates, which is much cheaper, being only 2 cents for every 2 oz. or fraction thereof, but the latter has the disadvantage of being opened by the Post Office officials in the course of their duty, and as these gentlemen and ladies are not all naturalists, or acquainted with the mode of handling such objects, damage is sometimes unavoidable; it is best if the specimens are many and valuable to have the boxes pasted shut, even if the postage is higher. I certainly always would prefer that plan. For the address you must paste a clean piece of yellow or white paper on the lid, and write on it always the full address, thus:

Name,

No. of Post Office box, or street, as the case may be,

City or town,

County, Shire or Province,

State, Kingdom or Empire,

Country.

* See Plate 2, C 1, C 2.

Do not give merely the man's name and town and imagine because he is a valued friend of yours, and known to naturalists, that he is by any means as equally well known to the Post-Office carriers, who have enough to do without doing hours of work that you might perhaps save them by a scratch of the pen. I always direct all letters in full, and of the thousands I have written, I can recollect of but four failing to reach the parties addressed, and in the case of two of these it was owing to the parties having removed to parts unknown; bear these few hints well in mind, and you will save the Post-Office officials, your correspondents, and yourself much trouble and disappointment, and perhaps in some cases loss to yourself.

The packing of moths must be managed differently, for to fold their wings back like the day butterflies is unnatural and compresses the back of the thorax destroying much of the beauty; they should be put on pins; where it is absolutely necessary three or so may be put on one pin, leaving a little space between each; but I would advise this only where it is necessary to make the package containing them as small as possible; it is infinitely better to put but one on each pin; these can be pinned tightly into a flat segar-box, lined with cork at the bottom; force the pins in with the forceps, force them through the cork into the wood of the box even, if you choose, for if only one gets loose during transportation it will ruin probably the contents of the whole box; before putting them in see that the abdomens are all tight; if one be loose put a little dissolved Gum Tragacanth on below where it is joined to the thorax, this you do of course with a small camels-hair pencil or toy paint brush. With the larger moths and Sphingidæ it is necessary to secure the abdomen by a little raw cotton drawn over it and secured by pins forced into the bottom of the box, so if the abdomen should get loose from the thorax it cannot move from its position or do harm; I will allude further to this in my remarks on packing expanded and prepared specimens to send to foreign parts; when the specimens are all tightly pinned in the box, paste it shut. But in this case, where your examples are on pins, you must put your segar-box, containing them, into another larger box of light wood or stout pasteboard, and have the space between the two filled with raw cotton, fine marsh hay, tow or kindred soft material; if you neglect this, your correspondent will have the mortification of receiving the examples without their antennæ or abdomens, as it is the soft packing, between the inner and outer boxes, that acts like a spring and breaks the jarring that, of course, anything is subject to during transportation by railway or coach; the space between the box containing the Lepidoptera and the outer box should not be less than one inch. When all is packed, direct it, ask your Postmaster the amount of stamps requisite, see that he carefully weighs it, see that you rub the stamps tightly on with your thumb nail—don't just wet one corner and give them a dab with the end of your finger and let them go—these are trifles, you will say, but attention to them may save, perhaps, much time and vexation.

PACKING SPECIMENS ALREADY EXPANDED TO PLACE IN THE COLLECTION, FOR TRANSMISSION TO FOREIGN PARTS.

For this purpose it is best to have boxes made of very stout paste-board, binders' board, or of light wood such as is used for cigar boxes; these boxes should be 10 x 14 inches and $1\frac{3}{4}$ inches deep in the clear, the lids should fit over them, the bottom of the box must be lined with cork or other soft material; cork is the best as it is tenacious and closes on the pin when it is inserted into it, whilst in aloe pith and such like the pin breaks a hole into it, as it were, and jarring during a long journey may loosen the pin entirely, that it drops out; then the very mischief is loose, as the insect thus freed rolls from end to end of box cutting furrows through the lines, of beautiful specimens, it is enough to burn one's heart even to think of it.

In the centre of the lid of this box, cut a square hole, 3 x $3\frac{1}{2}$ inches, and on the outside of the lid, over this hole, lay a piece of stout glass of about 4 x 5 inches, which you secure in its place by first fastening strips of stout paper along its edges to the lid with gum arabic, (which adheres to glass), and then paste other larger strips over these with flour paste; this will secure the glass firmly in its place; this glass is, of course, only necessary to be put into boxes that have to pass through the hands of Custom House officers; they see through the glass that the contents are insects, and that ends the matter; but were the glass not in they would rip the boxes open where they are pasted shut, and in so doing damage the contents, besides they would not again be pasted shut, and I leave you to imagine in what state your butterflies will reach their destination.

The box just described is the best I know of; it is light in weight, sufficiently strong, and with careful packing a great number of examples may be safely put away.

Never use a double box for transportation, in which the insects are to be pinned on both sides; such boxes are only fit to stand on the shelves of a closet, but never to send away.

After the bottom of the box has the cork glued securely in, paste clean paper over the cork, when that is dry put a thin layer of clean, raw cotton over the whole bottom; you can secure this by pushing a dull punch or awl through the cotton into the cork, giving the awl a twist and then pulling it out—the cotton will stick in the hole; do this here and there, at spaces of about two inches apart, along the edges.

You are now all ready to put your specimens into the box; you begin at the uppermost corner, facing your left hand, and pin a butterfly or moth in with the forceps, force the pin in tightly and see that the body is all tight and right, then take another butterfly and pin him aside of the first, letting his wings, facing your left hand, cover the wings of the first one you put in, facing your right hand, then take another, and so on until you get to the edge of the box facing your right hand; then begin a second row, at the same end of the box as you began the first, and when you place the first butterfly of this second row try to get the head and thorax between the hind wings of the fly right above him, which will cause his front wings to partially cover the hind wings of the specimen right above him; after he is in place take another, and so keep on; Diagram III A, Plate 2, will make the above clear. This method is called shingling, and is used and probably originated with the German Lepidopterists, and a better or prettier way don't exist; it is best to have

the specimens in one row, as near of a size as possible, and in the case of large-bodied moths always secure the abdomen in the manner described on page 23.

Another plan, somewhat similar to that just described, is to begin at the upper corner, facing your left hand, as in previous instance, but, instead of pinning from left to right, to pin from top to bottom of box; see Diagram III B, Plate 2; but the first plan will be found the best, on trying.

If you wish to send the names of the examples along, the best plan is to put on the pin, near the point, of each specimen a little piece of paper with a No. corresponding to a No. on a list which you send by mail; thus, No. 5 is on the pin of a white butterfly—your correspondent looks on the list you have sent him, and finds that No. 5 is *Anthocharis Genutia*. Here is the plan of making out lists:

ORDINARY FORM.

No. on the pin.	Number of ex- amples of each species.	NAME.	LOCALITY.
1	1	<i>Heliconius Cydno</i> ♂	Bogota.
2	6	<i>Colias Philodice</i> ♂ ♀	Penna.
3	2	<i>Colaenis Dido</i> ♂	Para.
4	1	<i>Catocala Nupta</i> ♀	Germany.
5	2	<i>Deilephila Zygophylli</i> ♂ ♀	Russia.

FORM IN WHICH THE EXCHANGING IS DONE ON A MONEY BASIS, EACH
EXAMPLE HAVING A FIXED PRICE.

No. on the pin.	Number of ex- amples of each species.	NAME.	Price per exam- ple.	Price for the whole number of examples.	LOCALITY.
1	1	<i>Heliconius Cydno</i> ♂	\$0.75	\$0.75	Bogota.
2	6	<i>Colias Philodice</i> ♂ ♀	.05	.30	Penna.
3	2	<i>Colaenis Dido</i> ♂	.50	1.00	Para.
4	1	<i>Catocala Nupta</i> ♀	.15	.15	Germany.
5	2	<i>Deilephila Zygophylli</i> ♂ ♀	3.75	7.50	Russia.

Always keep a copy of the list, so that if your letter containing it is lost, you can make out another for your friend.

Never send this list in the box or package which contains the butterflies, unless they are not going out of the country, for the revenue regulations are strict as regards sending writing in boxes of goods, and never, on any pretence, send a letter in a box that is to pass through the Customs; it not only

would get you into trouble, but also your consigne, and the party or company who transport your packages; the penalty would be heavy fines and total confiscation of your box or package.

You now have your butterflies all pinned tightly in the box which presents a beautiful mosaic of tints and shades that the art of man is futile to imitate; after giving them a last admiring look, you may with a brush smear a little creosote on the inside of the lid here and there, not slop it on, but rub a little back and forward with the hair pencil till nearly dry, as it were; then put the lid on and paste it fast with strips of strong paper, so that neither vermin, dust, or anything else can get in—secure every place; thus they are safely shut in, though you can still get a peep at a small portion of the contents through the glass placed in the lid for the delight of the Custom House officials.

You have now four of these boxes filled and pasted shut (the paste is entirely dry by this time); these, when placed on each other, make a bulk of 13 inches long, 10 inches wide, and $8\frac{1}{2}$ high, allowing for some fine hay or layers of old, soft paper to be placed between each. What you next require is a tight box, made of strong, light, $\frac{1}{2}$ inch wood, to be in the clear 16 inches long, 13 inches wide and 12 inches deep; in this you must put fine, dry marsh hay, tow or other soft, springy material, to the depth of $1\frac{1}{2}$ inches, then place in one of your boxes of butterflies, all around which, after it is in, will be $1\frac{1}{2}$ inch space; this space you fill with more hay—don't pack tight, only moderately, so that there is a little spring, as it were—then put on top of this box of butterflies, just packed in, a thin layer of hay or a few thicknesses of old, soft paper, and put in then your next box and pack hay around it, and so on until the four boxes are in; there will be then $1\frac{1}{2}$ inches space between the last box of butterflies and the top of the wooden box enclosing them; fill this with more hay—not too tight packed, yet not too loose—and screw on the lid of the wooden box; don't nail it, by any means—always screw it—do not use more screws than are necessary, but still enough, then direct plainly as follows:

SPECIMENS OF NATURAL HISTORY—INSECTS.

Handle Carefully and Keep Dry—Fragile.

Name of party to receive the box,
No. and Street,
City, Town or Village,
County, Shire, Canton, &c., as the case may be,
Kingdom, Republic, Principality, &c., as the case may be,
Europe, U. S. of N. America, &c., as the case may be.

Care of, or via

MORRIS EUROPEAN AND AMERICAN EXPRESS,

Office, 50 Broadway, New York, N. Y.

Do this and your box is bound to go safely.

You can also put in pamphlets and other printed matter along with your butterfly boxes, but in that case you must state so in the direction under "Specimens of Nat. History," thus, "Samples of Publication on Nat. History," or whatever it is; but be careful and, as I before cautioned you, never put any letter or other writing in, also put nothing more in than what you state on the outside of the box to be its contents.

You have now all ready for shipment, and though it has cost you trouble, it has been a pleasure to you nevertheless, and you anticipate many additions and new treasures for your collection as the result of this lot.

If you live in New York, you have only to have your box delivered at the office of the Morris European and American Express, 50 Broadway, N. Y.; get it insured if you wish to—they will do that for you, too, at a moderate rate—and should the vessel go down taking your box with it you will receive its value in money, which, of course, isn't as satisfactory by half as having your box reach its destination in safety, but, as "man proposes and God disposes," as our old copy-book headers used to say, it is still better than to get nothing at all.

Having paid your insurance and got the receipt therefor, and bill of lading, you have nothing further to worry about; your box will go safe and be delivered at the door of your consignee, be it in Liverpool or St. Petersburg, Alexandria, Bombay, Cape Town, or anywhere else.

There are also other trans-Atlantic Express Cos., but this is the one that has done my principal business, and has always done it well, safely and rapidly, in less time and at less cost than any other company. Their Central European Office is at present 7 Rue d'Antin, Paris.

Principal Office in Great Britain—London: Geo. W. Wheatley & Co., Globe Foreign Express—Chief Office, 156 Leadenhall Street. Branch Offices—33 St. Paul's Churchyard; 23 Regent Street.

Liverpool: Geo. W. Wheatley & Co., Globe Foreign Express, 10 North John Street.

Hamburg: P. Lehrs, 31 Kleine Reichenstrasse.

Bremen: Heinrich Becker, 39 Langestrasse.

If you live inland, your nearest Express or Transportation Co. will take your box to the nearest office of the Morris European and American Express, and give you a receipt for its safe delivery; you can also, if necessary or desirable, write at time of shipment, to the Company's Office, advising of fact of shipment and giving or asking any information desirable.

If you live in the United States, you can, through this company, have anything brought from Europe or elsewhere, by advising your correspondents to ship by them, as through them you can get a box from St. Petersburg to San Francisco and *vice versa*.

A box of the size described will cost, to send from New York City to any part of Germany, \$4.00; this covers all expense except Custom House Duties, but objects of Natural History are exempt from all duties whatever.

For further particulars of rates, &c., the Morris European and American Express circulars furnish full details, besides much other valuable information; these can be had on application, by mail or otherwise, at any of the Company's Offices.

If you wish to send from the United States to Canada, or *vice versa*, the same precautions are necessary and must be observed, as there are also Custom Houses on the Canadian line, but you can forward your boxes, &c., to Canada by the Central Express whose agencies are almost everywhere in N. America.

If you wish to send to California or far west, or the West, it takes longer and is as expensive, and there is more risk than in sending to or from Egypt. The very best way to get your specimens to or from there, if there be not too large a quantity, is to use the mail, but if you have such quantity as will make a bulk of 1 to $1\frac{1}{2}$ cubic feet, use the Express Cos.—it will cost frightfully but can't be helped; or, if yet larger numbers that perhaps your boxes will fill an outer case of 24 ins. x 18 x 18, or larger, then use the Freight lines, but when you deliver your box at the Railroad Freight Office be sure to get a receipt and a duplicate receipt; the first you keep in some safe place, the second you send by mail to your consignee, for you will probably, before the boxes reach their destination (if they have any great distance to go), have to begin to trace where they are from both ends of the line; I had the pleasure once of amusing myself for nearly six months that way; yes, it actually took over five months to get a box from San Francisco to Reading, but the box was a large one and only cost \$5.00 freight; had it came by express it would have cost about \$50.00.

Finally, never send or allow things to be sent by sailing-vessels when you can use steamers; if you do, the consequences are, that they are ten times as long on their way, and arrive at their destination ruined by mould.

If you live in the United States, never have things sent to you that you will have to try to get out of the Custom House yourself, for they will remain there till they rot, as far as you are concerned, for you can't get them out—you can't do it, don't try it even; if ever such an accident does occur, apply directly to a Custom House broker and make up your mind it is going to cost you as much, at least, to get it out of the Custom House as it did to get there from any part of Europe; be resigned, thank God, when after many days you get your box, and guard against the like occurring again in the future.

THE REARING OF LEPIDOPTERA FROM THE EGG AND CATERPILLAR.

In order to get the eggs of day butterflies it is necessary to confine the live female along with the growing food-plant; this has been successfully done by putting over the plant, if it be a small one, a nail-keg or barrel, out of which the bottom has been knocked; the top of the keg, after it is placed over the plant with the butterfly imprisoned, you cover with a cloth; the female thus imprisoned will deposit her eggs, from which in a few days the young caterpillars will emerge; for these, care must be taken in providing fresh food and keeping out of the reach of ants, &c.; glass jars with gauze over the top answer well for breeding cages for some of the smaller species, but the better plan is to have breeding cages, the skeleton of which is wood and the sides fine iron-wire gauze; within this can be stood flasks of water in which the food-plant may be placed; keep your breeding cages out of the sun, the food fresh, and things generally in as near a state as possible to what they ought to be if the larvæ were at large; the size of these cages is not material, but may be made to suit the convenience. The larva will, after undergoing several moults, or throwing off of the old skin, transform into naked chrysalis affixed to the stems or leaves of the food-plant, or to the sides of breeding cage, by

the tail and a filament at each side, as do the *Papilio*, &c., or suspended by the tail alone, head down, as do the *Vanessans*, &c.; in a couple of weeks the butterfly will emerge and you will thus get specimens in the greatest perfection; to the entirely uninitiated I might as well mention that the butterfly, on emerging, will have the wings exceedingly small, scarce one-fifth of the length that they will be when fully developed; all you will have to do is to let the butterfly alone—it knows its own business best—and, as soon as it finds a suitable place to hang on by, its wings will begin to develop or grow under your eyes, and in a short time, a quarter to a half hour or so, will reach their full size and beauty, but it takes an hour or so longer for them to get their strength.

If your larvæ be of the fall brood, the fly will not emerge until the following spring, remaining in the chrysalis all winter; but if you put the box containing the chrysalids in a warm room, you can thus force them out in a few weeks, but your specimens are apt to be deformed when this forcing process is used.

In obtaining eggs and rearing caterpillars of moths, a somewhat different treatment is necessary.

The female, when confined in anything, will lay her eggs on the sides of her prison or in any other place, and no food-plant or other plant is necessary.

If you capture a virgin female, or have one to emerge from the chrysalis for you, of the *Saturniæ* or some of the *Sphingidæ*, &c., secure her alive in some convenient place out-doors, and the males will be powerfully attracted and come to her, from apparently a great distance; thereby she will become impregnated and you will get fertile eggs, as well as at the time you may obtain good examples of the males that fly to her; often, when I have had a female come from the cocoon, in the house, I have had the males to fly into the windows to her.

With the larva of the *Saturniæ* and other spinners you may pursue the same course of treatment as in the case of the day butterflies, but, instead of transforming into a naked chrysalis like these latter, they will spin a silken cocoon and undergo their transformation therein. But the *Sphingidæ*, *Cithæronia*, *Eacles*, &c., which undergo their metamorphosis under ground without spinning a cocoon, require more judgment and care; for these, the bottom of the breeding cage should be furnished with 6 to 8 inches ground, moss, sawdust, dead leaves, &c., so that the worms, when they are ready, may go into it; after they have changed to the pupa state they may be put between layers of moss in an open box, about 6 inches deep, and placed in the open air on a veranda or in a cool room, where they will remain until the following spring or summer, when the moths will emerge; it is necessary to sprinkle the moss, covering the pupas, occasionally with water, or if there be drizzling rain that is not freezing, as sometimes occurs, set your box out for awhile and let the contents have the benefit of it. Another way is to sink a half barrel into the ground and put your moss and pupas in it and let them take care of themselves; this is getting them into a position as near to nature as is possible, but you must protect them from rats, &c., by putting an old sieve over the sunken barrel; this also is necessary, in spring and summer, to prevent the escape of the moths as they emerge, otherwise they would leave with no thanks for what you have done for them.

Some larva hibernate over winter; these are the most difficult to deal with, for if the situation and concomitants are not just such as suits them they wither up and die. But the best rule to go by, in rearing larva, is to try,

under all circumstances, to keep them as nearly situated, in all possible respects, as they would be in nature.

Some larva may be fed on the growing plant; if it be a tree, there can be a gauze bag tied over the branch on which they are to feed, and when they have stripped that branch, gently remove them to another by bending it towards them; when they have crawled on to the new branch put the gauze over it as before, and so on; of course, when nearly full-grown, the larvæ will have to be removed to the breeding box to undergo their change into the pupa state.

The above plan may be adopted in forcing some species of Diurnals to lay their eggs; it is not convenient to get a punchoon big enough to put over an apple tree, but you can enclose the end of a branch in a bag, inside of which the butterfly will lay its eggs.

In rearing larva, I would recommend the rearing of large numbers of even the common kinds, as it takes no more trouble to get food for a hundred than it does for a dozen, and not only can you use all the butterflies that result therefrom in perfect condition, but you may be rewarded with varieties, one alone of which might be sufficient reward for years of entomological labour; for instance, if you get from the willows, in June, the black spine-covered caterpillars of *Vanessa Antiopa*, and transfer them to your breeding cage and feed them a day or so—you need not trouble yourself to get them until they are nearly full-grown, unless you wish to—they will transform, and in two weeks thereafter will emerge butterflies; now, what may be the result? Well, I will tell you what it was in my case: one emerged with the yellow band of wings twice as broad as in the normal form, and with no vestiges of the band of blue, submarginal spots that are on the ordinary specimens; this was the rare var. *Hygiea*, Hdrch., (*Lintnerii*, Fitch), and any one who each successive season secures the larva of *V. Antiopa* will be sooner or later rewarded with examples of this variety; one friend got three, another one, so you see the value of every season securing as many of the larva of *V. Antiopa* from the willows as possible, and imprison them in your breeding cage; if they all come out the common form no harm is done—you only need stand your cage on the ledge of the open window, open its door and let them fly out—but if some wondrous variety is among them, how great the reward!

This species produces, besides other varieties, one in which the pale yellow covers the full outer half of all wings; another in which the marginal band of primaries, instead of being yellow, is dark like the rest of the wing.

Also secure all the larva of *Pyrameis Cardui*, which is found on the thistles; it is brown and yellow striped and covered with spines; though a common species, there sometimes occurs a marvelous variety in which the under side secondaries is plain white, and the upper surface is curiously ornamented with white, wedge-shaped marks on the nervures and nervules near and at their terminations on the exterior margin of wings; this is the rare *Vanessa Elymi*, Rbr., occurring both in Europe and N. America.

Pyrameis Atalanta, also, though much more seldom, produces a variety entirely different from the ordinary form.

Argynnis Idalia produces the variety *Ashtaroth*, in which the upper side of secondaries is plain black, devoid of spots, and the under surface has only one great, silver spot; of this species, however, the larvæ is not yet known, but doubtless, in common with the other Argynnidae, it feeds on violets.

Papilio Asterius gives the splendid variety *Calverleyi*, in which the basal half of all wings is black, and outer half rich orange. Rear all the larva of

Asterius you can possibly find—it is a species subject to much variation; there is no trouble at all either to find or raise the larva; it is light-green, banded with velvet black, it feeds on the leaves of carrots, parsnips and allied plants; if the worm be touched it sends, from behind its head, a forked, yellow affair which hurts nobody.

I would also say of *P. Turnus* that it presents innumerable varieties; this species, as is well known, is dimorphic, having two kinds of females, one yellow like the male, and the other black, but there occur forms between the two which are neither yellow nor black, but pepper-and-salt, mixed up of both colours; others there are where the upper surface is black and the under yellow, others where the two wings of one side are black, female, and those on the opposite side yellow, female, others where one side is male (yellow), and the other is female (black).

There are varieties of *Colias Philodice* greyish black on the whole upper surface.

Among the moths is also found much variation; *Telea Polyphemus* occurs in many colours, greyish, brownish, reddish, bright yellow, and almost white, and varies in expanse from 2 $\frac{3}{4}$ to over 6 inches.

Should any one, by following my suggestions, be fortunate enough to breed any of the above or other curious varieties, I would hold it a great favour if they would communicate the intelligence to me with the full particulars.

I would also ask my friends to direct their attention to the raising of the larvæ of *Smerinthus Myops*, *Sm. Astylus*, *Sm. Modestes* and *Darapsa Versicolor*, also to secure *Catocala Relicta*; these species are always in high demand, and will command splendid exchanges. In the appended synopsis will be found the names of the food-plants of the *Smerinthii*, as well as of many others, to which I beg the attention of the reader, as well as also to remind him once again that I need great numbers of all species, rare as well as the more common, whether butterfly or moth; every year I need and can use thousands.

A FEW FINAL REMARKS.

Entomology, in common with every other earthly pursuit, whether of pleasure or business, requires the expenditure of some money for books, material, occasional specimens, &c., &c., and as these are often to be obtained from a distance, in the larger towns or cities, I would advise you never to send money loose in a letter; if it goes anywhere within the United States use a Post-Office money order, or if there is no money order system at your place, get the letter registered; in sending money to Canada, get the letter containing it registered. If you send money to Europe, and the amount be not too large, use the Post-Office money order system—it is admirable; the amount you deposit with your Postmaster is delivered into the hands of your European friend without any trouble to yourself; if the amount you wish to send be large, then, of course, the better way is to get from the Messrs. Drexel, 3d Street, Philadelphia, or Exchange Place, New York, a gold draft payable to the order of your European correspondent, which you send him by mail.

In Continental Europe every species has its price, according to rarity or beauty, and in exchanging abroad it is almost invariably necessary to also affix a cash value to each species you send; as we have no fixed prices in this

country, it is a little difficult to do so, but by comparing our insects with the European species of like rarity or commonness, we can place to them the same or approximate prices.

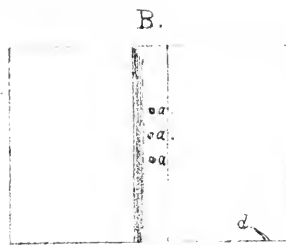
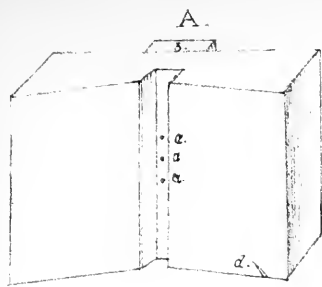
Neatness in expanding and perfection of specimens have been too lightly heeded heretofore in this country, as the collector seemed to think if he had captured the insect it was all right, no matter how much it was battered or defaced; it is ever well to bear in mind that one fine, faultless specimen is worth no end of rubbish, but still, as I have before remarked, in the very rare species we must be satisfied to take the best we can get; but if all our collectors would take heed and not put Sphinx pins in Geometreæ, and some examples near the head of the pin and some two-thirds down, it would enhance the value of their examples very considerably.

It must be borne in mind that many species, especially Exotics, can only be gotten by purchase; as the expenses of traveling and living in some countries are very great, the products of the collector's labours must bring him money to meet those expenses, and as the major part of his collections are generally not the rarest species, it is but reasonable to suppose that the rare species will have to pay for what he loses by the small price of the commoner kinds. Though by purchasing a large number or quantity together, oftentimes very great rarities are secured at a merely nominal figure; in the prices (except of the European species) there is no set value—the law of demand and supply regulating it; a species that you may get to-day for a dollar may be worth, in a week, five, or what may be five to-day may in a short time fall to one.

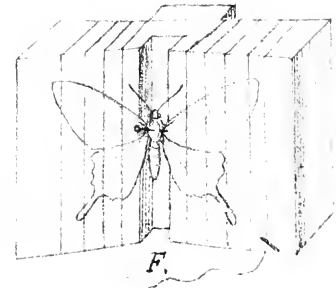
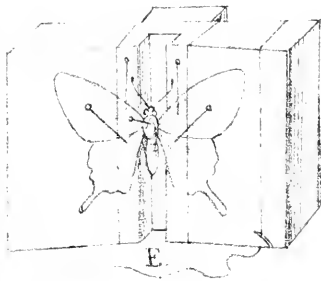
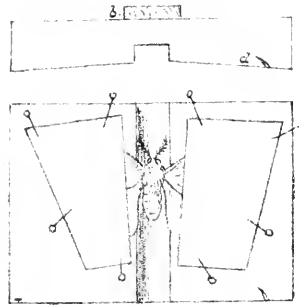
As a rule, the species of Siberia and Amoorland are the most expensive, then come certain splendid exotics, such as the glorious Agrias, many of the Papilio, Saturniæ, &c. *Papilio Antimachus, Dru.*, from W. Africa, of which but few specimens are known, all male, would bring, if it could be at all obtained, almost any price, and there are other species that would command any price, almost, if they could but be obtained.

Then again, many very handsome species, such as *Papilio Sarpedon*, *P. Agamemnon*, *P. Evemon*, *P. Phaeton*, *Callicore Clymena*, *Vici. Sthenales*, *Ageronia Arethusa*, *A. Feronia*, &c., &c., &c., can be had at prices ranging from 25 cents to \$1.00 apiece. But as the student gets deeper interested in the study, and better acquainted with the various species through the figures and descriptions of the different authors, he will better appreciate their value.

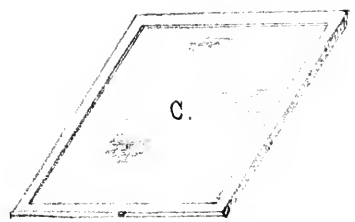
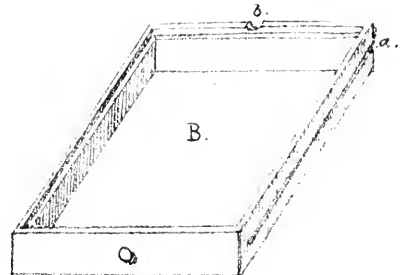
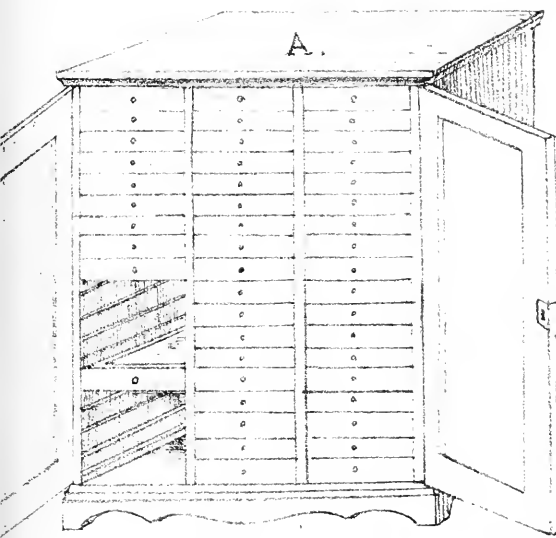
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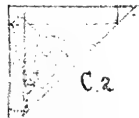
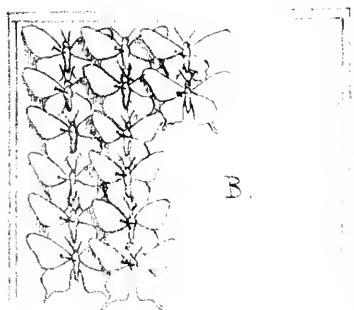
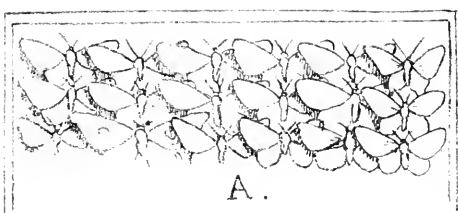


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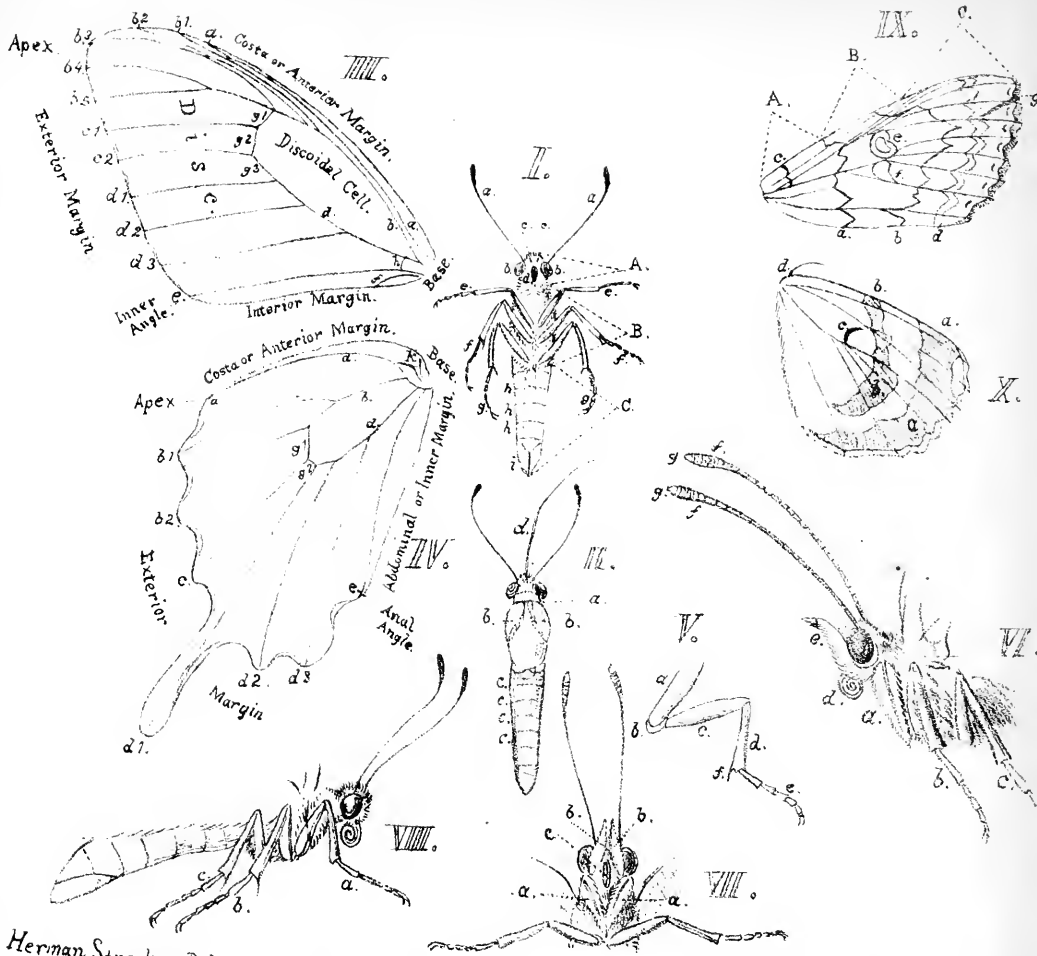
Herman Buecker Del.

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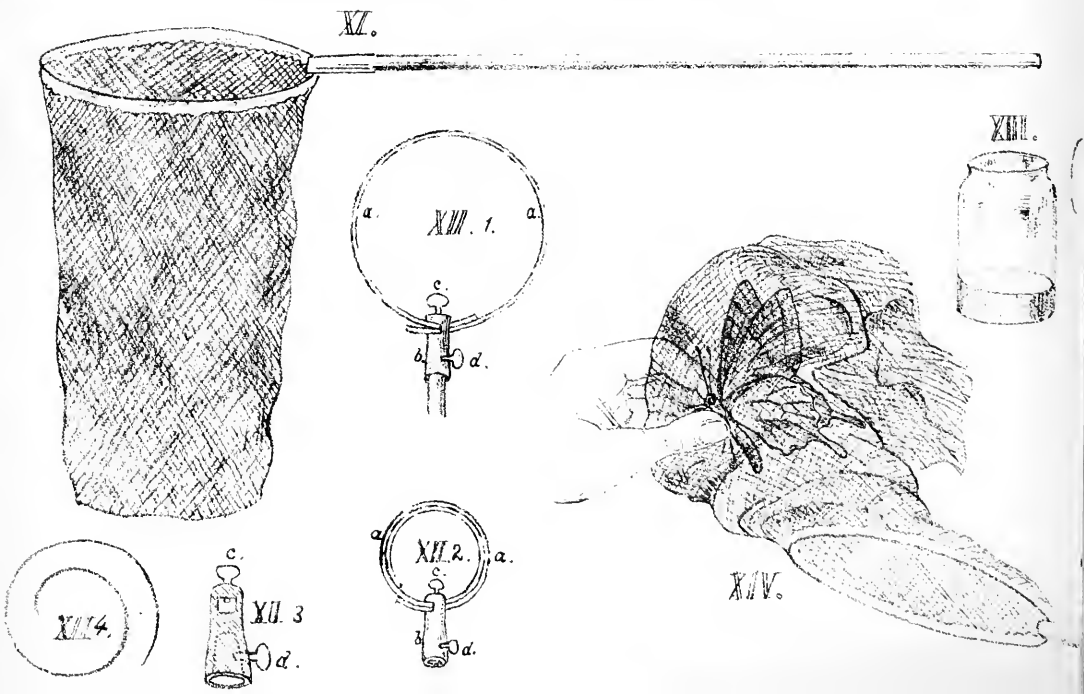








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STRUCTURE OF BUTTERFLIES AND MOTHS, AS SHOWN ON
PLATE 1, FIGS. I-X.

I. BODY, UNDER SIDE, (of *Papilio Turnus*).

A. HEAD.

- a, a.* Antennæ, or feelers.
- b, b.* Eyes.
- c, c.* Palpi.
- d.* Tongue, or Haustellum.

B. THORAX.

- e, e.* Pedes antici, fore legs.
- f, f.* Pedes medii, middle legs.
- g, g.* Pedes postici, hind legs.

C. ABDOMEN.

- h, h, h, h.* Segments, of which there are six or seven.
- i.* Anal extremity.

II. BODY, ABOVE.

- a.* Collar.
- b, b.* Scapulae, Tegulae or Pterygodes, shoulder covers.
- c, c, c, c.* Abdominal segments.

III. PRIMARY, OR FORE WING.

- a, a.* Costal nervure.
- b.* Sub-costal nervure.
- b 1, b 2, b 3, b 4, b 5.* Sub-costal nervules.
- c 1, c 2.* Discoidal nervules.
- d.* Median nervure.
- d 1, d 2, d 3.* Median nervules.
- e.* Sub-median nervure.
- f.* Internal nervure, confined almost solely to the *Papilionidæ*.
- g 1.* Upper disco-cellular nervule.
- g 2.* Middle disco-cellular nervule.
- g 3.* Lower disco-cellular nervule.
- h.* Interno median nervule, found only in *Papilionidæ* and *Morphidæ*.

IV. SECONDARY, POSTERIOR OR HIND WING.

- a.* Costal nervure.
- b.* Sub-costal nervure.
- b 1, b 2.* Sub-costal nervules.
- c.* Discoidal nervule.
- d.* Median nervure.
- d 1, d 2, d 3.* Median nervules.
- e.* Sub-median nervure.
- g 1, g 2.* Disco-cellular nervules.
- k.* Pre-costal nervure.

V. LEG.

- a.* Coxa.
- b.* Trochanter.
- c.* Femur.
- d.* Tibia.
- e.* Tarsi.
- f.* Calcares, spurs.

VI. SIDE VIEW OF HEAD AND THORAX OF VANESSA (larger than in nature).

- a.* Abortive fore legs which lay against the breast.
- b.* Pedes medii.
- c.* Pedes postici.
- d.* Tongue.
- e.* Palpi.
- f, f.* Clubs of antennae.
- g, g.* Tips of clubs.

VII. FRONT VIEW OF ABOVE.

- a, a.* Abortive fore legs.
- b, b.* Palpi.
- c.* Tongue.

VIII. SIDE VIEW OF BODY OF PAPILIO.

- a.* Fore legs.
- b.* Middle legs.
- c.* Posterior legs.

IX. PRIMARY OR FORE WING OF CATOCALA (C. Parta).

- A. Basal area or space.
- B. Middle area or space.
- C. Limbal area or space.
 - a.* Transverse anterior line.
 - b.* Transverse posterior line.
 - c.* Basal line.
 - d.* Sub-marginal line.
 - e.* Reniform spot.
 - f.* Sub-reniform spot.
 - g.* Sub-apical shade or dash.

X. POSTERIOR OR HIND WING OF CATOCALA (C. Parta).

- a, a.* Marginal band.
- b, b.* Median or mesial band.
- c.* Discal lune or mark.
- d.* Frenulum, simple in male and forked or double in female.

THE TERMS AND ABBREVIATIONS USED IN WORKS ON LEPIDOPTERA.

Abdomen. The hind part of the body.

Vide Pl. 1, f. I, c.

Abdominal groove. The concave shape of the abdominal margin of the primaries, which enclose the abdomen while at rest, in some families of the Rhopalocera, in the Satyridae and Nymphalidae, for instance.

Abdominal margin. The margin or edge of wings nearest to abdomen.

Vide Pl. 1, f. IV.

Abdominal pouch. In the females of *Parnassius* and *Eurytus*, a corneous appendage attached to the under side of abdomen near the anal extremity.

Abdominal segments. The rings or annulations composing the abdomen. *Vide* Pl. 1, f. I, C, h, h, h.

<i>Ab.</i> ,	} widely differing from the parent form, as in the cases of the aberrant <i>Vanessa Hygiea</i> (<i>V. Linthea</i> , <i>Fitch</i>), <i>Pyrausta Elymi</i> , <i>Argynnis Ashtaroth</i> , etc.
<i>Aberration</i> ,	
<i>Aberratio</i> , Lat.	
<i>Abänderung</i> , Ger.	

Aberrant form. See aberration.

Acuminate. Sharply pointed.

Alae anteriores. Fore wings.

Alae posteriores. Hind wings.

<i>Alb.</i> ,	} White.
<i>Albus</i> ,	
<i>Alba</i> ,	
<i>Album</i> .	

Albino. Used to designate the white forms of some species, especially in the genus *Colias*, where, in addition to a female of the same colour as the male, there occurs in most species a white female: as *C. Helice*, which is the albino female of *C. Edusa*, *C. Pallida* of *C. Erate*, etc. These white varieties are always much scarcer than the normal females.

Albinism. The white state of some forms of insects.

Albinous. Relating to albino forms.

Anal. Relating to the hinder extremity of the abdomen.

Anal angle. The angle of wings nearest to extremity of abdomen.—*Vide* Pl. 1, f. III, IV.

Anal eye. An eye-like spot at or near anal angle of hind wings.

Anal extremity. Hind extremity of abdomen.

Anal ocellus. See anal eye.

Anal spot. A spot near the anal angle of hind wings, distinguished from the anal eye by being plain and generally of but one colour, whilst the ocellus is formed of consecutive rings of various colours, thus forming an eye-like spot.

Anal segment. The last segment, ring or annulation of the abdomen.

Anal tuft. The brushes or tufts of hair or hairy scales which ornament the extremity of the abdomen in some species, most conspicuous in *Macroglossa* and allies.

Anal valves. On the last segment of the abdomen, conspicuous in the males of the genus *Papilio*.—*Vide* Pl. 1, f. I, i.

Analogue. A species of one country that is analogous to that of another: thus, *Colias Eurytheme* is the N. American analogue of the European *C. Edusa*, or *Papilio Zolicaon* that of *P. Machaon*, etc.

Angulated. Where the exterior margin of the wings is dentated and pointed, as in *Grapta*, *Vanessa* and *Junonia*.

Annulated. Ringed.

Annulations. Rings or joints, as of the abdomen, antennae, etc.

Antennae. Feelers.—*Vide* Pl. 1, f. I, a, a.

Anterior wings. See *alae anteriores*. *Vide* Pl. 1, f. III.

- Apex*, } The outermost angle
Apices, *pl.* } of wing, formed by the
Apical angle. } junction of the costal
and exterior margins.—*Vide* Pl. 1,
f. III, IV.
- Apical*. Relating to the apex.
- Apical dash*. A dark mark on primaries near the apex in many of the Noctuae, especially the Catocalae.
- Arcuate*, } Applied to the costa
Arcuated. } of primaries when much
rounded or curved in the form of a
bow, as in some of the Attaci.
- Area*. The surface or a part of the surface of the wing: as basal area or middle area.—*Vide* Pl. 1, f. IX, A, B, C.
- Argenteous*. Silvery.
- Articulations*. Joints.
- Apterous*. Without wings, wingless.
- Auroral spot*. The bright orange-coloured spot on the apical part of primaries in the genus *Anthocharis*.
- Band*, } A rather even and some-
Bar. } what broad stripe.
- Base*, } That portion of the wings
Basis. } or antennae which join the
body or head.
- Basal*. Belonging to, or at the base.
- Basal area*. The area of the wing nearest the base.—*Vide* Pl. 1, f. IX, A.
- Basal hairs*. The hairs which clothe the parts of the wing nearest the body; in many of the *Heteroceres* these are laid on very heavy and thick.
- Basal line*. The line on primaries nearest the base.
- Basal patch*. The patch of colour nearest the base.
- Bifid*. Forked, or divided in two.
- Blind-eye*. A spot without a pupil.
- Bloom*. The fine violet dust-like appearance conspicuous on the pupas of Catocala, resembling that on plums and some other fruit.
- Blotch*. A rather large, irregular-formed patch or mark.
- Calcares*. The spurs at the end of the tibiae.—*Vide* Pl. 1, f. V, f.
- Caterpillar*. The larval or embryonic state of *Lepidoptera*.
- Caudal*. Appertaining to the tail.
- Caudal horn*. The horn on anal segment of the larva of *Sphingidae*.
- Caudal appendage*. Tail-like processes on the exterior margin of the hind wings of many species of butterflies and moths.
- Caudate*. Tailed.
- Cells*, } The spaces between the
Cellulae. } nervures and veins.
- Chrysalis*, } The second transforma-
Chrysalid. } tion of *Lepidoptera*. The
pupa. A mummy-shaped affair,
incapable of feeding, suspended in
some instances by the tail; in others
it lies concealed in the earth, or else
is protected by a cocoon.
- Cillia*, } Fringes or hair-like scales
Cilliae. } on the exterior margins of
the wings of *Lepidoptera*.
- Ciliated*. Fringed.
- Cinereous*, } Grey. Ashen col-
Cineraceous. } oured.
- Clavate*. Club form.
- Clavate antennae*. Antennae terminating in a club.
- Club*. The heavy terminations of the antennae of day butterflies.—*Vide* Pl. 1, f. VI, f, f.
- Clypeus*. Front plate of the head.
- Cocoon*. A case formed by many of the larvae of the *Heteroceres* previous to their changing to the pupa state. They are sometimes all silk, more or less gummed, and sometimes the hairs of the caterpillar itself help to form it, or bits of dead leaves, etc., enter into its composition.
- Coll*. Collectia, collection, museum.
- Collar*, } The part immediately be-
Collare. } hind the head.—*Vide* Pl. 1,
f. II, a.
- Common*. Found in more than one species, or, if applied to ornamentation, when the same marks or colours are "common to both wings, etc."
- Concare*. Excavated or hollowed out in a curved form.
- Concolor*. The same color.
- Concolorous*. Of the same color.
- Confluent*. Running into each other: as confluent spots, spots running into each other.

- Congener.* Belonging to the same genus with other species.
- Congeneric.* Of the same kind.
- Contiguous.* Joining one another: as "contiguous spots."
- Convergent.* Directed or tending towards one point.
- Convex.* Curved outward.
- Cordate.* Heart-shaped.
- Coriaceous.* Leathery, tough, stiff.
- Corneous.* Horny, of horn-like substance.
- Corneous pouch.* See abdominal pouch.
- Costa.* Front or anterior edge of the wing.
- Costal.* At the costa.
- Costal nerve,* } The great vein on
Costal vein. } the anterior margin.
Vide Pl. 1, f. III, IV, a. a.
- Coxa.* The first joint of the leg which connects it with the body.—Vide Pl. 1, f. V, a.
- Crenate.* Having round teeth; scalloped.
- Crenulated.* Having small round projections.
- Crescent.* A mark the shape of the moon in her first quarter.
- Crepuscular.* Flying in the twilight, or just before dawn.
- Crepuscular Lepidoptera.* Formerly used to designate the Sphingidae, a family of Heteroceres that fly in the twilight or gloaming.
- Crested.* Ornamented with a crest of raised scales on the back of the thorax, as in the case of many of the Noctuae.
- Cucullated.* Hooded.
- Cupreous.* Copper-coloured, or of a coppery tinge.
- Dentate.* Toothed, serrated.
- Dentated.* With teeth, as when the margin of a wing is "dentated" or toothed.
- Denticulate,* } With small teeth or
Denticulated. } points.
- Desideratum.* Pl. *Desiderata.* Something that is lacking or wanting; as "any new species of *Colias* or *Argynnis* are always great *desiderata* with me.
- Diaphanous.* Transparent; as in the genus *Ithomia*, where the wings are clear, and nearly destitute of scales.
- Dilated.* Expanded.
- Dimorphic,* } Occurring under two
Dimorphous } forms, as in the case of *Papilio Turnus*, which has a yellow female resembling the male, and another female entirely black; or, as with the *Coliades*, which have, in addition to a normal-coloured female, another that is quite white.
- Dimorphism.* The state of being dimorphous.
- Disc,* } Vide Pl. 1, f. III.
Disk. }
- Discal.* Pertaining to the disc.
- Discal bar.* A bar or stripe on or very close to the disco-cellular nervules.
- Discal spot.* A spot situated at the disco-cellular nervules.
- Disco-cellular veins.*—Vide Pl. 1, f. III, IV, g 1, g 2, g 3.
- Discoidal cell.*—Vide Pl. 1, f. III, IV.
- Diurnae.* Day butterflies, *Rhopaloceres*.
- Diurnal.* Pertaining to day, as the butterflies that fly in the day time only are called diurnae.
- Divergent.* Apart from each other, as divergent rays.
- Dorsal.* Pertaining to the back.
- Dorsal band or stripe.* A band or stripe on the back.
- Emarginate.* Notched.
- Emarginations.* Notches or indentations, as in the exterior margins of wings of many species of butterflies and moths.
- Entire.* When used in connection with the wings, it means the edges are of an even curve, without indentations or projections.
- Etc.* Etraetera, and so on; in German u. s. w., und so weiter.
- Ex.,* } Specimen.
Example. }
- Ex larva.* From the larva; reared or raised from the larva.
- Ex ova.* From the egg; raised from the egg.

Ex parte. One-sided; *ex parte* statement, a one-sided statement.

Expanse. The greatest width across from tip to tip of the expanded fore wings or primaries.

Exserted. Protruded, stuck out.

Externally, } Outwardly; towards
Exteriorly, } the exterior or outer margin, etc.

Exterior margin. The outer margin. *Vide* Pl. 1, f. III, IV.

Exuvia. Cast-off skin, as of caterpillars when they molt.

Falcate. Hooked, sickle shaped, as in the primaries of some of the Attaci.

Falcated. Sickle-shaped.

Family, } A group of allied genera,
Familia, } as the family Nymphalidae, etc., etc.

Fascia. A rather broad transverse band.

Fauna. The animals of any given territory; thus, the insect fauna of Labrador embraces all the insects found within the limits of that country.

Femur. Thigh, the third joint of leg. *Vide* Pl. 1, f. V, c.

Fenestrated. Windowed; used in connection with those Lepidoptera which have many transparent spots on the otherwise dark surface of the wings, as in case of *Heleona Fenestrata*, an Australian species.

Ferruginous. Iron rust coloured, colour of burnt sienna.

F., Fig., } Figure; representation
f., fig. } of an object or specimen.

Filiform. Thread-like.

Flavus, }
Flava, } Yellow.
Flavum, }

Flavism. Yellowness; as in a yellow example of a butterfly in which the parent and normal form is some other colour; for instance, in the yellow females of *Anthocharis Sara*, and *Pieris Sisymbrii*, which are exceptions to the ordinary colour of those species, which is white.

Flavescent. Of a yellowish cast, with a tendency towards yellow.

Flexuous. Sinuous, winding; as a flexuous line is a winding, irregular line.

Foliaceous. Leaf-like; as in the under surface of *Gonepteryx Clorinde*, *Kallima Inachus*, etc.

Fore wing. Primary, anterior or superior wing.—*Vide* Pl. 1, f. III and IX.

Fovea. A depression, like in the middle of the upper surface of hind wings of *Tecophora Fovea*, from which peculiarity it has derived its name.

Frenulum. A strong nerve or bristle, emanating from the costa of hind wing near the root. This is only found in such Lepidoptera as fold their wings while at rest, like the Catocalae and other Noctuae; in the male it is single, in the female double or bifid.—*Vide* Pl. 1, f. X, d.

Fringe, }
Fringes, } See cillia.

Fuliginous. Sooty, dusky, smoke-coloured.

Fulvous. Brownish-yellow, tawney.

Furcate, }
Furcated, } Forked.

Fuscous. Blackish brown.

Fusiform. Spindle-shaped, tapering at both ends; thus, fusiform antennae are antennae which are thickest near the middle.

Gamma. The third letter in the Greek alphabet. A silver spot in the shape of a gamma adorns the upper wings of several noctuae, among them *Plusia Gamma*, L., which has very appropriately received its name from that circumstance.

Ganglion. Pl. *Ganglia.* Centres of the nervous system, from which are thrown off the various nerves.

Geminate. Twin, in pairs; as geminate spots are two spots nearly alike in size, and close together.

Generation. Brood.

Generatio prima. First or spring brood.

Generatio secunda. Second or summer generation or brood.

Genital armour. The outer casing, anal hooks, etc., of the organs of generation.

Genus. Pl. Genera. A collection of allied species.

Glabrous. Smooth; devoid of hair or granulations.

Glaucous. Hoary, or greyish-blue or green.

Globose. Prominently round; like a globe; globular.

Granulated. Rough, like the grain of coarse stone, full of innumerable little prominences and wrinkles.

Griseous. Light grey, composed of a combination of black and white atoms; grizzled.

Hab. Habitat. Locality, home.

Hastate. Shaped like the head of a halberd or dart.

Hatched. Closely marked with numberless short, transverse lines.

Haustellum. Proboscis, sucker.—*Vide* Pl. 1, f. I, II, VI, d.

Haustellated. Having a proboscis-like tongue.

Hermaphrodite, } An example
Hermaphroditus, Lat. } which is both male and female, or partly each.

Vide Angeronia prunaria, Nat. Lib. Vol. VII, Ent. t. 27. *Papilio Castor*, Wien. Ent. Mon., Vol. VII, t. 19. *Papilio Asterius* and *Saturnia Promethea*, Proc. Ent. Soc. Phil., Vol. IV, p. 390. In our own collection are also a number of Hermaphrodite examples.

Heterocerces. The second of the two great divisions of Lepidoptera, embracing the Sphinges, Bombyces, Noctuae, Geometrae, Pyralidina, Tortricina, Tineina, Micropterygina, Pterophorina and Alucitina, the greater part of which fly at night.

Heterocerous. Pertaining to the Heterocera.

Hexapod. A six-footed animal, as the true insects.

Hexapodous. Having six feet.

Hind wing. The inferior wing, or secondary.—*Vide* Pl. 1, f. IV and X.

Hirsute. Hairy; covered thickly with hair, as the larvae of the Arctiidae.

Hyaline. Transparent like glass. *See* diaphanous.

Hybrid, } Mongrel, bastard.
Hybridus, Lat. } Produced by the mixture of two species.—*Vide* *Hybrida ex Smerinthus, Ocellata et Smerinthus Populi*. Humphreys Brit. moths t. 1. (1843). Lep., Rhop. et Het., Strecker, Vol. 1, t. VII.

Imago. The final and perfect state of an insect.

Immaculate. Spotless, pure; devoid of all spots or markings whatever.

Inferiors. Hind wings, Secondaries. *Vide* Pl. 1, f. IV and IX.

Inferior surface. Under surface.

Inferior wings. *See* inferiors.

Ini. Initio. In the beginning; commencement.

Inner angle. Posterior angle, formed by the meeting of the exterior and interior margins.—*Vide* Pl. 1, f. III.

Inner margin. The margin or edge of wings nearest the abdomen. *Vide* Pl. 1, f. III, IV.

Internally. Inwardly, towards the thorax.

Interior margin. *See* inner margin.

Interrupted. Broken; as, an interrupted line is a broken line, etc.

Iridescent. Showing the reflection of the prismatic or rainbow colours.

Irrorate, } Powdered with minute
Irrorated. } scales or dots.

Isolated. Alone, by itself; as, an isolated spot, mark or dash, etc.

Labial palpi. Small organs attached to the labium.

Labium. Lower lip.

Labrum. Upper lip.

Lamellate, } Formed of thin plates,
Lamellated. } leaves or scales.

Lamelliform. In the form of a plate or scale.

Lanceolate, } Drawn out to an acute
Lanceolated. } point; lance-shaped.

Larva. The first stage of an insect; the caterpillar.

Lateral. On the sides; pertaining to the sides.

Lat., }
Latinus. } Latin.

Lepidoptera. The third great order of insects, according to Linnaeus. They were formerly divided into Papilio, or day butterflies, Sphinx, or those which flew at dusk and dawn, and Phalaena, or the night-fliers, but at present we recognize but two great divisions, the Rhopalocera and Heterocera; the former having clubbed or knobbed antennae and the latter with these organs of every form, as filiform, fusiform, pectinate, etc., etc.

Lepidoptera Rhopalocera. The butterflies that fly by day, and having knobbed antennae. German, Tagfalter.

Lepidoptera Heterocera. Moths, night butterflies, comprising more than nine-tenths of all the Lepidoptera. German, Nachtfalter, or Nacht Schmetterling.

Lepidopteron. A butterfly or moth; a Lepidopterous insect.

Lepidopterous. Pertaining to Lepidoptera.

Limbal area. The outer or marginal area or space of the wing.—*Vide* Pl. 1, f. IX, C.

Linear. Long and narrow, like a line.

L. c., }
Loco citato. } At the place cited.

Longitudinal. Lengthwise; from base to extremity of wing, from head to end of body, etc.

Lune. A moon-shaped spot or mark.
See crescent.

Lunate. Crescent-shaped.

Lunule. A small crescent or moon-shaped mark.

Lunular, }
Lunulated. } Crescent-shaped.

Luteous. Yellow.

Macular, }
Maculated. } Spotted; composed of spots; as, a macular band is a band formed of spots.

Macro-Lepidoptera. Great or large Lepidoptera, comprising all the Rhopalocera, and the Heterocera to Pyralidina.

Major. (Lat. comp. of *Magnus*, great.) Greater; as, the major part, the greater part, etc.

Mandibles. Upper jaws.

Marbled. Variegated with irregular lines or blotches of two or more colours.

Margin. The edge.

Marginal. At or on the edges of the wings.

Marginal band. The terminal band of the wing, extending to the exterior margin or edge.

Marginal spots. Spots at the exterior margin of the wings.

Maxillae. Lower jaws.

Maxillary palpi. Minute organs attached to the maxillae.

Median. On or near the middle of the wing.

Median cell. The space between the cross nerve and medians. Sometimes it is divided by a longitudinal nervure into two parts, which are called the *anterior* and *inferior* median cells.

Median nervure.—*Vide* Pl. 1, f. III, IV, *d.*

Median nervules.—*Vide* Pl. 1, f. III, IV, *d 1, d 2, d 3.*

Median space. Middle field of wing.
Vide Pl. 1, f. IX, B.

Median vein. *See* median nervure.

Melanism. In a black state, opposite of Albinism. Like the black female forms of *Papilio Turnus*.

Melano. A black form or variety.

Melanotic. Relating to melanism.

Mesial band. A band or stripe transversely crossing the middle of the wing, as in the hind wings of the *Catocalas*.

Mesothorax. Second or middle ring of thorax.

Metathorax. Third or last ring of thorax.

Micro-Lepidoptera. Little Lepidoptera or butterflies; commencing with the Pyralidina and continuing to and embracing the Alucitina, the last in the great order Lepidoptera.

Middle area. *See* middle space.

Minor. Smaller; as in Asia-Minor, smaller or lesser Asia.

Moult. To cast off the skin; this is done by caterpillars a number of times before they change into the chrysalis, and in many instances each successive moult results in great difference in their appearance.

MSS. Manuscript. Manuscript description; manuscript name; a name or description as yet unpublished.

Mucronate. Terminating in a short, sharp process, as do the chrysalids of *Eacles Imperialis*, *Anisota Senatoria*, etc.

Mus. Museum. A collection. German, Sammlung.

Nacred. Having iridescent, prismatic colours, like mother-of-pearl.

Nervures. The main ribs or veins that support the wings.

Nervules. Branches of the nervures; small nervures; veinlets.

Nervation. Arrangement of the nervures and nervules; nervation; venation.

Niger,
Nigra, } Black.
Nigrum. }

N. in litt., } Manuscript names;
Nomen in litteris. } unpublished names
—names that have been only used in correspondence, or in a private collection, but not published, and of course not valid.

N.,
Nomen. } Name.

Nomenclature. The technical terms used in any particular branch of science, or in any order, family or group, etc., in any branch of science.

Nov. sp. New species.

N.,
No., } Number.
Nro. }

Nymph. The old term for pupa.

Obconic. Conical, but with the point reversed; inversely conical.

Oblique. Slanting; diagonal to longitudinal and transverse.

Obliterate. Very faint.

Obscurus,
Obscura, } Obscure; dusky.
Obscurum. }

Obsolete, } Wanting, or scarcely
Obsolescent. } discernable; obscured.

Obtuse. Blunted at extremity.

Occiput. The base or hind part of the head.

Occipital. Pertaining to the back of the head.

Ocelli. Simple eyes situated in the rear of the large, compound eyes.

Ocellus. An eye-like spot, like on the hind wings of *Smerinthus Ocellata*, *S. Excavata* and *Hypercheria Varia*.

Ocellated. Marked with an eye-like spot, formed of concentric rings of various colours.

Ochraceous. Color of ochre or yellow clay.

Oculi. Large, round, compound eyes, occupying a large portion of the front part of the head.

Olivaceous. Olive colour; a sort of greenish-brown, remarkable only for ugliness.

Omnis. All.

Onisciform. Shaped like a wood-louse, as are many of the larvae of the Lycaenidae.

Orbicular, } In the Noctuae, a
Orbicular spot. } round spot in the median cell of the fore wings, interior to the reniform.

Original form. The parent form; stem form, from which aberrant or variable types may, in time, be developed.

Original type. The example or specimen from which a species was first described.

Oval,
Ovate, } Egg-shaped.
Ovoid, }
Ovoidal. }

Ovipositor. The organ used by insects for depositing their eggs.

Oviposition. Depositing of eggs.

Ovum. Pl. Ova. Egg.

P. Page.

- Palpi.* Jointed organs attached to the head; in the *Papilio* they are small and do not project, but in the *Nymphalidae* they stand out beyond the forehead, and in *Libythea* they are of enormous length.—*Vide* Pl. 1, f. VII, b, b.
- Palpuli.* Appendages growing above the palpi in some of the *Heterocera*, but not present in all species.
- Patagia.* Shoulder tippets, covering the base of the wings.
- Patch.* A space or large blotch; as, "a patch of grey near the inner angle."
- Pectinate,* } Comb-like; like the
Pectinated, } pectinated antennae of the
Saturnidae, which are furnished with regular processes arranged as are the teeth of a comb.
- Pedes antici.* Fore legs.—*Vide* Pl. 1, f. VI, a.
- Pedes medii.* Middle legs.—*Vide* Pl. 1, f. VI, b.
- Pedes postici.* Hind legs.—*Vide* Pl. 1, f. VI, c.
- Pilose.* Covered thickly with down.
- Planche, Fr.* Plate; table.
- P.* Plate; table.
- Plumose.* Resembling a feather; feathery, plume-like.
- Polymorphic.* When several different forms occur in the same species, as in the case of the E. Indian *Papilio Memnon*, L., which has many forms of the female, some with heavy tails, others tailless like the male, all differing more or less from each other in colour and ornamentation.
- Porrected.* Stretched, or pushed forth.
- Posterior margin.* Hind margin. *See* exterior margin.
- Posterior wings.* Secondaries; hind wings.—*Vide* Pl. 1, f. IV and X.
- Primaries.* Fore or anterior wings; superiors.—*Vide* Pl. 1, f. III and IX.
- Proboscis.* *See* Haustellum.—*Vide* Pl. 1, f. I, II, VI, d.
- Process.* A projection, as the fleshy processes on the larva of *Papilio Philenor*.
- Produced.* Lengthened out; elongated.
- Pro-legs.* The fleshy legs of caterpillars, sometimes called false legs.
- Prothorax.* First or front division of thorax.
- Pruinose.* Hoary; frosted.
- Pseudo.* Meaning false, as in *Lycæna Pseudargiolus*, false or counterfeit *Argiolus*, so named from its close resemblance to *Lycæna Argiolus*.
- Pterygodes.* Shoulder covers, called also scapulæ.—*Vide* Pl. 1, f. II, b, b.
- Pubescence.* Soft, fine hairs.
- Pubescent.* Covered with fine hair.
- Pulverulent.* Dusty.
- Pupa.* Chrysalis; the second stage of an insect.
- Pupil.* The centre of an ocellus or eye-like spot.
- Pupilled,* } Provided with a pupil;
Pupillated, } as, "all the sub-marginal spots are pupilled."
- Quadrate.* Square.
- Ray.* Long, bright marks or streaks diverging from each other.
- Recurved.* Curved backwards.
- Reniform,* } A kidney-shaped
Reniform spot, } spot, conspicuous on the wings of *Noctuæ*, especially on the *Catocalæ*.
- Reticulate,* } Covered with fine lines
Reticulated, } crossing each other like net-work.
- Retractile.* Having the power of drawing in, or contracting.
- Rhopalocera.* The first of the two great divisions into which the *Lepidoptera* have been divided. They all fly by day, have the antennæ terminated by a knob or club, and comprise the *Papilionidæ*, *Pieridæ*, *Lycenidæ*, *Erycinidæ*, *Libytheidæ*, *Nymphalidæ*, *Acraeidæ*, *Danaidæ*, *Satyridæ* and *Hesperidæ*, though the latter have strong claims to belong to the *Heterocera*.
- Ribs.* Veins; nervures. German, Rippe or Rippen.
- Ruber,* }
Rubra, } Red.
Rubrum, }

- Rudimentary wings.* Only partially developed or abortive wings which are stunted or imperfectly formed, and are incapable of producing flight, as in the females of the genus *Ocnogyna* and *Hybernia*.
- Rufescent,* } Red; reddish.
Rufous. }
- Rugose.* Wrinkled.
- Sanguineous.* Colour of blood.
- Scabrous.* Covered with small rugged points.
- Scales.* The covering of the wings of Lepidoptera; it is these that give the beautiful colours and marks to the insect, as when they are detached there remains only the transparent membrane; some Lepidoptera are so slightly clothed with scales as to be diaphanous, and are called clear-wings; prominent among these are the Sesiidae and Ithomiidae.
- Scalloped.* The margin indented with segments of circles.
- Scutellum.* Shield or buckler-shaped.
- Scutellum.* A small, triangular part of the mesothorax, situate at its hind end.
- Secondaries.* Hind wings, inferior wings or secondary wings.—*Vide* Pl. 1, f. IV and X.
- Segments.* Divisions or rings that compose the body.—*Vide* Pl. 1, f. I, h, h, h, f. II, c, c, c, c.
- Segregated.* Detached or scattered into groups; as, "segregated atoms," groups of loose or scattered atoms.
- Semi.* Half; and in some instances, partly.
- Semi-lunate.* Partly lunate, or with a tendency to being crescent-shaped.
- Sending.* A thing sent; as, a "sending of insects," or, "I received your sending in good order."
- Sep.* Separate.
- Sep.* *Separatabdruck*, German. Separate printed descriptions, etc.; advance sheets.
- Series.* A suite, row or line.
- Serrate,* } Sharply toothed; as, a
Serrated. } serrated margin, a margin edged with teeth like a saw.
- Setaceous.* Like a bristle.
- Setiform.* Bristle-shaped.
- Setose.* Covered with bristles; bristly.
- Simple.* Plain; opposed to compound; as, "simple eyes."
- Sinuate,* } Winding; waved; irregu-
Sinuuous. } lar; sinuous lines; winding or undulating lines.
- Sinus.* A deep indentation.
- Spatulate.* Spoon-shaped.
- Sp.,* } A distinct kind, differing
Species. } from others in the same genus.
- Sp. Darwin,* } Darwinian
Species Darwiniana. } species. Species which, through climatic or other causes, have, in course of time, become entirely different from the form from which they had originally sprung.
- Spiracles.* Breathing holes, situated in the sides of the segments, in both larva and imago, and are connected with the two large tracheæ, which extend along the sides of the body.
- Spur.* A small spine on the tibiae.
See calcæres.—*Vide* Pl. 1, f. V, f.
- Spurred.* Furnished with spurs.
- Squamose.* Scaly, covered or clothed with scales.
- Squamation.* Scaliness.
- Stamm,* German. Stem.
- Stammform,* German. Stem form; parent form, from which other later forms have originated.
- Stemmata.* Simple eyes. *See* Ocelli.
- Sternum.* The lower part of the thorax; the breast.
- Streak.* A narrow stripe.
- Stria.* Pl. *Striæ.* A small line; properly, a depressed or indented line.
- Striated.* Marked with fine lines.
- Sub.* Prefixed to other words, modifies or lessens their force; thus subhyaline means partially hyaline; sub-marginal, near the margin.
- Sub-apical.* Near the apex.
- Sub-apical dash.* A not very large dark mark starting from the exterior margin of primaries not far from the apex; most noticeable in the Catocalidae.
- Sub-basal.* Near the base.

Sub-Costal. Near or below the costa.
Sub-hyaline. Partly hyaline or transparent.
Sub-marginal. Near the margin.
Sub-median. Below the middle of the wing.
Sub-quadrate. Nearly square.
Sub-reniform, } A spot below the
Sub-reniform spot. } reniform on the fore wings of the noctuae.
Sub-terminal. Near the extremity or end, as a sub-terminal joint is the joint next to the last.
Sub-terminal band. The band nearest the last or marginal band, or near without being on the margin.
Suffused. Clouded or obscured with a darker colour.
Suffused variety. A variety or form in which some one colour of the wing has predominated and obscured wholly or in part the other colours, as in the instance of *Argynnis* var. *Ashtaroth*, *Pyrameis* var. *Elymi*, and others; but it is a freak of great rarity.
Suite. A large number or line of one species; See series.
Superiors, } Upper or fore-
Superior wings. } wings, primaries.—
Vide Pl. 1, f. III and IX.
Superior Surface. Upper side or surface.
Suture. Indentation or joint between the segments.
Syn., } A different name given
Synonym. } to the same species.
Synonymous. Meaning the same; as, thus: "in Berks Comty, Pa., to be a scientist is *synonymous* to being a lunatic."
Synopsis. A combined, condensed description of all the families, genera, etc., composing a whole order.
T., } Plate; table.
Tabula. }
Tail. An elongation of the exterior margin of hind wing.
Tailed. Provided with tail-like appendages to the hind wings.
Tailless. Without tails.

Tarsus. *Pl. Tarsi.* The foot; the fifth and last division of the leg.
Vide Pl. 1, f. V, e.
Tawny. Buff; greyish-yellow.
Tegulae. Shoulder covers; Pterygodes.
Vide Pl. 1, f. II, b, b.
Tentacle. A process proceeding from the head in some larva; it is either simple or branched. In the larva of the Papilionidae it is Y-shaped, and can be protruded or drawn entirely in, at the pleasure of the animal.
Tentaculated. Provided with Tentacles.
Terminal. Belonging or pertaining to the extremity or end.
Terminal joint. The last joint as "terminal joint of abdomen."
Terminal segment. The last annulation or joint.
Terminal horn. A horn situate on the top of the last segment in some caterpillars. See Caudal horn.
Tessellate, } Checkered like a chess-
Tessellated. } board.
Thoracic. Belonging to the thorax.
Thorax. The second great division of the body, situate between the head and abdomen. The legs are attached to this part.—*Vide Pl. 1, f. I, B.*
Tibia, Pl. Tibiae. The fourth joint of the leg.—*Vide Pl. 1, f. V, d.*
Tips. The ends of the clubs of the antennae.—*Vide Pl. 1, f. VI, g, g.*
Tooth. A prominence on the exterior margin of wings, generally a more or less prolongation of the veins, the hollow spaces between such prominences are called emarginations.
Toothed. Provided with little projections.
Tracheae. Air tubes; respiratory organs; these open by a number of breathing holes, called Spiracles, in the sides of the body of both larva and perfect insect; in the latter the principal of these are situated in the first abdominal segments and the

thorax. In the larvae there is, on each side, one on each segment to the number of ten or eleven.

Transverse. Across the wing from costal to interior margin; or, the body from side to side.

Transverse line. A line crossing the wing from costa to inner margin.

T. a. line, } In the Cato-
Transverse anterior line. } calas, the line that divides the basal from the middle area on the fore wings.—*Vide* Pl. 1, f. IX, *a.*

T. p. line, } In the Cato-
Transverse posterior line. } calas, the line that divides the median from the limbal or outer area on the fore wings.—*Vide* Pl. 1, f. IX, *b.*

Tri-tailed. With three tails on the exterior margin of secondaries or hind wings.

Trochanter. The second joint of leg; it is between the coxa and femur.
Vide Pl. 1, f. V, *b.*

Truncate, } Terminating abruptly,
Truncated. } as if cut squarely off.

Tubercles. Small wart-like projections.
Tuberculose. Covered more or less with tubercles.

Type. } The example or
Type specimen. } specimen from which a species was first described.

Under surface. The under side, the inferior surface.

Undulate. Wavy, sinuous.

Unguis. A claw.

Unicolorous. Of one colour, as when an insect is all of one colour it is unicolorous.

Upper surface. Upper side, superior surface, the side exposed to view when the wings are spread.

V, } Species that from cli-
Var., } mate, food or other influ-
Varietas, } ence, present differences
Variety, } in colour, shape or size
Variation } from the typical form; thus some butterflies that are tailed in India and China are devoid of those appendages in the Polynesian Islands, and some that are pale coloured become darker as they occur further northward.

Veins. See nervures.

Veinlets. See Nervules.

Venation. See Neuration.

Ventral. Pertaining to the under side of body or abdomen.

Ventral band. } A longitudinal band,
Ventral line. } stripe or line on the
Ventral stripe. } under side of the abdomen.

Verrucose. See tuberculose.

Violaceous. Inclining to violet or purple.

Villose. Covered with long, soft hairs.

Vitreous. Glassy; transparent. See diaphanous.

♂. Male.

♀. Female.



AN ALPHABETICAL AND EXPLANATORY LIST OF LOCALITIES OF WHICH THE LEPIDOPTEROUS FAUNA IS MORE OR LESS KNOWN.

- ABYSSINIA** (*Arabic*). A country in East Africa, bordering on the Red Sea on the north-east, and on Nubia on the west.
- ADELAIDE**. The capital of South Australia.
- AFGHANISTAN**. The country of the Afghans; lies between Persia and Hindostan, south of Turkistan, and north of Beloochistan.
- AFR.** Africa. Afrique.
- AFRICA CENT.** Interior of Africa.
- AFRICA MER.** South Africa.
- AFRICA SEPT.** North Africa.
- AFRICA OCC.** West Africa.
- AFRICA OR.** Eastern Africa.
- ALABAMA** (*Indian*). One of the United States of N. Am.; it is south of Tennessee, east of Mississippi, and west of Georgia.
- ALASKA**. Formerly Russian America; the most north-western part of N. Am.
- ALBANIA**. In the south-west of European Turkey.
- ALGIERS**, } One of the Barbary
ALGERIA. } States, on northern coast
 of Africa, between Morocco and Tunis.
- ALLEGHANY** (*Indian*). Alleghany River, Alleghany Mts., in western Pennsylvania and Virginia.
- ALEUTIAN ISLANDS**. A chain of islands between Alaska and Kamtschatka.
- ALPS**. Higher mountains of Europe.
- ALPINE**. Relating to the Alps.
- ALT.**, } Altai Mountains in S. W.
ALTAI. } Siberia.
- AMASIA**. A town in Asia Minor.
- AMAZON INF.** Lower Amazons.
- AMAZON SUP.** Upper Amazons.
- AMBALA**. North-west India, near the Himalayas.
- AMBOINA**, } One of the smaller of
AMBOYNA. } the Moluccas, or Spice
 Islands, the home of *Ornithoptera Priamus*.
- AM.** America. Amerique.
- AMERICA BOR.** Arctic America.
- AMERICA SEPT.** North America.
- AMERICA MERID.** South America.
- AMMOORLAND**, } Amur. Amurensis.
AMURLAND. } The country along the
 Amur river in the eastern part of Chinese Tartary.
- ANDALUSIA**. One of the southern provinces of Spain.
- ANDES**. High mountain ranges of S. America.
- ANDAMAN ISLANDS**. A number of islands in the Bay of Bengal south of Birmah.
- ANEITIUM**. One of the southern of the New Hebrides.
- ANGLIA**. England.
- ANGOLA**. On the west coast of Africa, below Loango. St. Paul de Loando is the principal settlement.
- ANTICOSTI ISLAND**. A large island in the Gulf of St. Lawrence, south of Labrador.
- ANTILLES**. The great and lesser Antilles, the West Indian Islands.
- ANTIOCH**, } A town in the north-
ANTIOCHIA. } west of Syria.
- APOLOBAMBA**. A town in the province of Beni, in north-western Bolivia.
- APPALACHICOLA**. (*Indian*). A town in west Florida at the mouth of the Appalachicola river.
- ARABIA**. The country lying south of Asiatic Turkey, between the Gulf of Persia and the Red Sea.
- ARARAT**. A mountain in Eastern Armenia, 17,100 feet high.
- ARAL SEA**. A large, inland sea in

- south-western Siberia; its southern shores are on Turan.
- ARCTIC REGIONS.** The region north of N. L. 60°.
- ARIZONA** (*Indian*). A Territory, bounded on the west by California, on the south by Mexico, on the east by N. Mexico, and on the north by Utah.
- ARKANSAS** (*Indian*). One of the United States; it lies east of Indian Territory, and north of Louisiana.
- ARM.**, } North-eastern part of
ARMENIA. } Asiatic Turkey.
- ARU.** Aru Islands. A group of islands south of the western end of New Guinea.
- AS.** Asia.
- ASIA MINOR.** Little Asia; the north-western part of Asiatic Turkey.
- ASHANTL.** In north Guinea, on the west coast of Africa.
- ASTRACHAN.** South-eastern Russia; its principal town, of the same name, is at the mouth of the Volga.
- ASSAM.** A district of N. E. Hindostan, adjoining Birmah. Also a settlement on the island of Bali.
- ATLANTIC STATES.** Those of the United States bordering on the Atlantic Ocean.
- AUSTRIA.** The Empire of Austria, in Germany, is north of Turkey, west of Russia and south of Prussia.
- AUSTRALIA.** The largest island in the world, it lies south of Papua. Its Lepidopterous fauna does not present the same remarkable forms as in the larger animals, although there are immense Cossidae, some expanding eight inches, besides curious Sphingidae, etc.
- AUSTRALASIA.** Contains Australia, New Guinea, New Zealand, Vandieman's Land, Solomon's Islands, New Britain, New Ireland, and New Hebrides.
- AZORES.** A group of small islands in the Atlantic, westward of Portugal.
- BAHIA.** A district of Brazil; Bahia or Sansalvador, on the Bay of All Saints on the eastern coast is one of the principal cities of Brazil.
- BAHAMAS.** Bahama or Lucayan Islands, a number of small islands east and south-east of Florida.
- BAIKAL LAKE.** An inland sea in Irkoutsk, south-eastern Siberia.
- BALCAN,** } A tract of country, embracing
BALKAN. } Dalmatia, European Turkey and Greece.
- BALI,** } An island direct east of
BALY. } Java, lying between the latter and Lombok.
- BANANA ISLAND.** Near the coast of Sierra Leone, west Africa. The locality of Drury's wonderful, long-tailed *Saturnia Argus*.
- BANCA.** A small island, N. E. of Celebes, from which it is separated by the Straits of Banca.
- BANDA ISLANDS.** Some small islands of the Moluccas, lying between the latter and Obi.
- BANKA.** An island in the China Sea, close to and south-eastward of Sumatra, famous for its tin mines.
- BARBARY,** } The north coast of
BARBARIA. } Africa, embracing Morocco, Algiers, Tunis and Tripoli.
- BATAVIA.** The capital of Java.
- BATCHIAN.** One of the Moluccas, near the southern extremity of Gilolo.
- BEHRING'S STRAIT.** The narrow strait that separates Asia from America; it is but 40 miles wide.
- BELGIUM.** Kingdom of Belgium, north-east of France.
- BELOOCHISTAN.** The country south of Afghanistan, and between Persia and Hindostan.
- BENGAL,** } That part of Hindostan
BENGALIA. } that lies on the Ganges.
- BERMUDAS.** Small islands in the Atlantic, eastward from Georgia.
- BEYRAT,** } A town on the west
BEYROUT. } coast of Syria.
- BIOTAN.** In the north-east of Hindostan, near Assam.
- BIRMAH.** A part of Farther India, lying between Hindostan and Siam, and bordering on the south on the Bay of Bengal.

- BISSAO.** Portugese possession on the coast of Senegambia, West Africa.
BITH. } North-western Asia
BITHYNIA. } Minor.
BOHEMIA. In the north-west of Austria, south of Saxony and east of Bavaria.
BOLIVIA. A republic of South America, north of Buenos Ayres and between Brazil and Peru.
BOMBAY. A district on the west coast of Hindostan. Its capital bears the same name.
BOOTAN. See Bhotan.
BOOTHIA-FELIX. In Arctic America, north of Prince William's Land. The types of *Colias Boothii* were taken there by the 2d Ross expedition in 1832.
BOR, }
BOREALIS. } Arctic.
BORNEO. An immense island lying south-east of Farther India, north of Java, and south of the Philippines.
BOURBON. Isle of Bourbon. An Island in the Indian Ocean east of Madagascar.
BOURU. One of the Moluccas, lies west of Ceram and Amboina, and south of Obi and Batchian.
BRAZIL, } Empire of Brazil in
BRASILIA. } S. America.
BRISBANE. A town on Moreton Bay, in New South Wales, East Australia.
BRITANNIA. Great Britain.
BRITISH AMERICA, } The British
BRITISH COLUMBIA. } possessions in
N. America, comprising, with the exception of Alaska, all that part north of N. L. 49°.
BRITISH GUIANA. Demerara, Essequibo and Berbice.
BUENOS AYRES. That part of S. America east of Chili, south of Bolivia, and north of Patagonia.
BULGARIA. A territory in the eastern part of European Turkey, separated from Wallachia on the north by the Danube River, while on the east it borders on the Black Sea.
- BURIAS.** A small island, near the south-eastern extremity of the great island of Luzon.
BURMAH. See Birmah.
BUTON. One of the Moluccas, close to and south-east of Celebes.
CAFFRARIA. On the south-east coast of Africa, east of Cape Colony. Natal is its principal town.
CALABAR. New and Old Calabar, two settlements on the coast of upper Guinea, West Africa.
CALABRIA. Extreme southern province of Italy.
CALCUTTA. The largest city in Hindostan, situated on the Hoogly river, one of the mouths of the Ganges
CALIFORNIA. On west coast of N. America, borders on the Pacific and is south of Oregon. The Lepidopterous Fauna of this state and adjacent territories have a wonderful similarity to those of Europe.
CAMBODIA. In Farther India, east of Siam.
CAMEROONS. In lower Guinea, west coast of Africa, below Calabar.
CAMETA. A town in N. Brazil near the mouth of the Tocantins river.
CAMPEACHY. On west coast of Yucatan.
CANADA. Dominion of Canada, part of the British possessions in North America.
CANARA. A district on west coast of Hindostan.
CANARIES, }
CANARY ISLANDS. } A group of islands west of Morocco.
CAPE COAST. Coast around the Cape of Good Hope.
CAPE COLONY. The southernmost part of Africa.
CAPE OF GOOD HOPE. The most southern point of Africa.
CAPE TOWN. Capital of Cape Colony.
CAPE YORK. The northernmost point of Australia; it is the home of the *Ornithoptera* var. *Pronomus*.
CAPE VERDE. On the coast of Senegambia, the most western point of Africa.

- CAPE VERDE ISLANDS.** A cluster of islands off Cape Verde.
- CAPIM.** A small river which empties into the Rio Para near its mouth, in Para district, north Brazil.
- CAROLINAS.** The States of North and South Carolina.
- CAROLINE ISLANDS.** A number of small islands in Polynesia, north-east of New Guinea.
- CARACCAS.** The capital city of Venezuela; it is situated 3,000 feet above the sea; was almost entirely destroyed by an earthquake in 1812, which buried 10,000 of its inhabitants.
- CASHMIR,** } The most northern
CASHMERE. } district of Hindostan.
- CASPIAN SEA.** Great inland sea, having Russia on the north-west, Turan on the east, and Persia on the south.
- CATHAY.** China proper.
- CATSKILLS.** Catskill Mountains, on the borders of Greene and Ulster Counties, in eastern New York.
- CASTILE.** Province of Central Spain. It is from here the peerless *Saturnia Isabelle* comes.
- CAUCASUS.** Mountains in Georgia, south-east Russia, ranging from the Caspian Sea to the Black Sea.
- CAYENNE.** French Guiana.
- CAZAMANCA.** River in Senegambia, west coast of Africa.
- CELEBES.** A large, very irregular-shaped island, lying between Borneo and the Moluccas.
- CENT. AM.,** } The territory
CENTRAL AMERICA. } between Mexico and S. America, consists of the states of Guatemala, Honduras, Nicaragua and some smaller ones. This country is in the enjoyment of almost continual internecine war.
- CERAM.** One of the Moluccas, direct west of New Guinea, and south of Gilola.
- CEYLON.** A large island south of Hindostan.
- CHATHAM ISLAND.** A small island east of New Zealand.
- CHIAPAS.** The southernmost province of Mexico, adjacent to Guatemala.
- CHILI.** One of the South American states, on the Pacific coast south of Peru, and west of Argentine Republic or Buenos Ayres.
- CHILOE.** An island directly south of Chili.
- CHINA.** Properly that portion of the Chinese Empire south of Tartary, east of Thibet, and north of Farther India.
- CHINESE TARTARY.** A great tract of country lying between the Amoor River and China. A part of the Chinese Empire.
- CHIMBORAZO.** The second highest mountain in S. Am., is 21,427 feet in height. In the western part of Ecuador.
- CHIRIQUI.** District in West Panama, adjacent to Costa-Rica. Marvelously rich in Lepidoptera. The locality of *Dynastor Napoleon*.
- CHUSAN, OR TSCHUSAN.** A small island near the east coast of China.
- CIRCUMPOLAR.** That portion north of N. L. 60°, surrounding the North Pole.
- COCHIN CHINA.** The part of Farther India on the west bordering on the China Sea.
- COLORADO TERRITORY.** South of Wyoming, east of Utah, north of N. Mexico, and west of Kansas; rich in a peculiar mountain fauna.
- COLUMBIA.** United States of Columbia, New Granada, the north-western state of S. America.
- CONNECTICUT.** One of the New England States, east of New York and south of Massachusetts.
- CONGO.** In Lower Guinea, west coast of Africa, between Loango and Angola.
- COPAN.** The ruins of an ancient city in north-western Guatemala. Numbers of wonderfully carved sandstone idols and altars, of whose origin or history nothing is known, are there succumbing to the effects of time and quietly crumbling away.

- CORDILLERAS.** The Andes. A long chain of mountains extending along the whole western coast of South America, from north to south.
- COREA.** A peninsula N. E. of China, between the Yellow Sea and the Sea of Japan.
- COROMANDEL.** South-east coast of Hindostan.
- CORRIENTES.** A cape on the coast of Mozambique, east Africa. Also a province and town in the east of Buenos Ayres, S. America.
- CORSICA.** A large island in the Mediterranean Sea, west of France. The birth-place of Napoleon Bonaparte.
- COSTA RICA.** The most southern State of Central America, lying between Nicaragua and Panama. It has a glorious Lepidopterous fauna.
- CRETE.** Candia. A large island in the Mediterranean Sea, south of Greece.
- CROATIA.** The most north-western territory of European Turkey.
- CUBA.** Largest of the West India Islands, is the locality for the gorgeous and rare *Papilio Gundlachianus*, *P. Caiguanabus*, and other fine species which occur nowhere else.
- CUENCA.** A town in the south-western part of Ecuador.
- CURACOA.** Island north of Venezuela.
- CYPRUS.** A large island in the Mediterranean, near to and belonging to Asiatic Turkey.
- DAHOMY.** East of Ashanti, in Upper Guinea, west coast of Africa. The pleasant place where on the death of one of its kings, a few thousands of his slaves and wives are immolated at the burial of the dear departed.
- DAKOTA,** } Territory of the United
DAKOTAH. } States, it is bounded on the north by British Columbia, on the south by Nebraska, east by Minnesota and west by Montana and Wyoming.
- DALMATIA.** A narrow territory belonging to Austria; it adjoins on the east Croatia, in Eur. Turkey, and on the west it coasts the Gulf of Venice.
- DAMARA-LAND.** South-west coast of Africa, above Cape Colony.
- DAMASCUS.** A city in the south-west of Syria.
- DANIA.** Denmark.
- DARIEN.** Isthmus of Darien, the narrow neck of land that connects North and South America.
- DARJEELING.** In Sikim, north-eastern Hindostan.
- DAURIA,** } South-east Siberia.
DAHURIA. }
- DECCAN.** Large district in southern Hindostan.
- DELAWARE.** One of the United States, south of Pennsylvania and New Jersey.
- DELAWARE RIVER.** Runs between Pennsylvania and New Jersey, and between the latter and Delaware.
- DELHI.** A district in northern Hindostan, west of Nepaul and Oude; its capital city, of the same name, was the seat of government and residence of the Mogul dynasty.
- DEMERARA.** British Guiana, lies between Venezuela and Surinam, or Dutch Guiana, on the north coast of South America. Georgetown, its capital, is situated at the mouth of the Demerara River.
- DENMARK.** Kingdom of Denmark.
- DIGNE.** A town in the lower Alps in south-east part of France near the borders of Italy; the beautiful and rare *Thais* var. *Honoratii* occurs in this locality.
- DHAWALAGHIRI.** The highest peak in the world; one of the Himalaya range in North Hindostan; it is 28,070 feet high.
- DOREY.** A point on the north-west of New Guinea.
- DSHILOLA.** Gilola.
- DUTCH GUIANA.** Surinam, on the northern coast of S. America, between British Guiana and Cayenne or

- French Guiana. It was here that Mad. Merian sojourned in 1699 and 1701, for the purpose of collecting and studying the material for her great work, the "*Metamorphosis Insectorum Suranamensium*," which was one of the earliest illustrated works on Lepidoptera published. On the Zellen plantation, in this district, the original of Cramer's figure of *Eudamonia Semiramis* was taken, one of the most remarkable moths in the world, having tails to the hind wings five inches long.
- EAST INDIES. East Indian Archipelago; the islands in the Pacific; Malaysia, Australasia, and Polynesia.
- ECUADOR. } Territory in the west
EQUADOR. } of South America, between Columbia and Peru; it contains the highest peaks of the Andes, Chimborazo and Cotopaxi; the former was ascended by the great Humboldt, in 1797, to the height of over 19,000 feet.
- EGA. A town on the Amazon, in Solimoes district, north-west Brazil.
- EGYPT. The north-eastern territory of Africa. The land of the Pharaohs, but remarkably meagre in Lepidoptera, though a land of mighty wonders to the archæologist.
- ENG. England.
- EQUATORIAL AFRICA. That portion of Africa along the Equator, including Lower Guinea, Ethiopia, Zanguebar, etc.
- ERIE (*Indian*). Lake Erie, one of the five great lakes of North America, four of which—Superior, Huron, Erie and Ontario, lay between the United States and British Columbia.
- ESMERALDAS. A town on the north-east coast of Ecuador.
- ETHIOPIA. Æthiopia, central Africa; most of it unknown.
- EUR., }
EUROPA. } Europe.
- EUXINE SEA. Black Sea, lying between Russia and Turkey.
- FARTHER INDIA. Includes Burmah, Siam, Cambodia, Cochin China, Laos, Tonquin and Malaya.
- FEEJEEES. Feejee Islands; a cluster of small islands in Polynesia east of the New Hebrides; the two principal are Takanova and Amboo.
- FENNIA. Finland.
- FERNANDO Po. An island near the northern part of the coast of Lower Guinea, W. Africa.
- FEZZAN. Great oasis in Sahara, south of Tripoli.
- FILJES. The Feejee Islands *See* Feejees.
- FINNLAND. The country of the Finns, in north-west Russia, it borders on the north on Lapland, and on the west on the Baltic Sea.
- FLA. Florida.
- FLORES. An island in Malaysia east of Java, between Sambawa and Timor, and south of Celebes.
- FLORIDA. The most southern of the United States; it joins Georgia on the north, its west coast is on the Gulf of Mexico, and its east on the Atlantic Ocean.
- FONTE BOA. A town on the Amazon River, in Solimoes district, north-western Brazil.
- FORMOSA. A great island off the coast of China.
- FR. France. German, Frankreich.
- FRENCH GUIANA. *See* Cayenne.
- FRIENDLY ISLANDS. A group of small islands in Polynesia, east of the Feejees, and south of Navigator's Islands.
- GABOON. A river on the Equator, in Lower Guinea, west Africa.
- GALAPAGOS. Some small islands on the Equator, west of S. America.
- GALICIA. A northern province of Austria, bordering on Russia.
- GALLIA. France.
- GAMBIA. A river in Senegambia, west coast of Africa.
- GEBIRGE (*German*). Mountains.
- GENIGUEH. In southern California.
- GEORGIA. One of the United States of N. America; on its north is Tennessee, on the south Florida, on the west Alabama, on the east

- South Carolina and the Atlantic Ocean.
- GEORGIA. In Transcaucasia; a tract of country separated from south-east Russia by the Caucasian Mountains; on its south are Asiatic Turkey and Persia.
- GY. Germany.
- GERMANIA. Germany.
- GILOLA. The largest of the Moluccas, lays between New Guinea and Celebes.
- GOLD COAST. Coast of Ashanti, W. Africa.
- GORAM. An island, in Malaysia, east of Ceram and west of New Guinea.
- GRAECIA. Greece.
- GRANADA. Southern part of Spain, bordering on the Mediterranean Sea.
- GREAT SLAVE LAKE. In Northern British America.
- GREENLAND. Polar regions north-east of British America, it is here that *Colias Hecla* is found.
- GUADALOUPE. One of the Little Antilles, south-east from Porto Rico and Hayti.
- GUATEMALA. In Central America, lies between Honduras and Chiapas, and borders on the Pacific.
- GUAYAQUIL. A town in western Ecuador.
- GUAXACA. See Oaxaca.
- GUINEA. Upper and Lower Guinea, on the west coast of Africa; the former embraces Ashanti, Dahomey, etc., and the latter Loango, Angola, Benguela, etc.
- GULF OF GUAYAQUIL. On the south-west coast of Ecuador.
- HAITI. Hayti, or St. Domingo, with the exception of Cuba, the largest of the West India Islands.
- HAKODADI. A city on the southern point of the island of Yesso, or Jesso, in Japan.
- HALICIA. See Galicia.
- HAWAII. Owyhee, the largest of the Sandwich Islands. Capt. Cook was killed there in 1779.
- HELVETIA. Switzerland; Schweiz.
- HEBRIDES. Some islands north-west of Scotland, sometimes called the Western Islands.
- HIBERNIA. Ireland.
- HIMALAYA. The great chain of mountains in the north of Hindostan, containing the highest peaks in the world.
- HINDOSTAN. India, south of Tartary, and between the Arabian Sea and Bay of Bengal.
- HISPANIA. Spain.
- HONDURAS. In Central America, east of Guatemala, and north of Nicaragua and San Salvador.
- HONG-KONG. A city on a little island at the mouth of the Si Kiang River, south-eastern coast of China.
- HUDSON BAY. Vast body of water in British America.
- HUNGARY. Ungarn. A kingdom of Austria, south of Galicia.
- HURON. Lake Huron; one of the five great lakes of N. America; its western shores are on the state of Michigan, and its eastern on Canada.
- Ib., } Peninsula of Spain and
Iberia. } Portugal.
- Iceland. A large, Arctic island, north-west of Great Britain, and to the east of Greenland.
- IDAHO (*Indian*). One of the western Territories of the U. S.; it borders on the west on Washington Territory and Oregon, on the east on Montana and Wyoming, on the south on Utah and Nevada, and on the north on British America.
- I., }
ILE., } Island.
ISLE, }
Is. }
- Ill. } (*Indian*). One of the
Illinois. } United States of N. Am.;
it is south of Wisconsin, and is
bounded on the east by Indiana,
on the west by Iowa and Missouri,
and south by Kentucky.
- IMERITIA. Western Transcaucasia.
- IND., } Hindostan and Farther
INDIA. } India.
- INDIAN ISLANDS. Malaysia, Poly-

- nesia and Australasia.
- INDIANA.** One of the United States of N. Am., south of Michigan, north of Kentucky, west of Ohio, and east of Illinois.
- INDUS.** A large river in the north-west of Hindostan; it empties into the Arabian Sea.
- INSAGASUGA.** The emerald mine district of New Granada; the home of the glorious *Morpho Cypris*, of which the natives have a pretty legend that the souls of these most lovely butterflies pass into the emeralds, or *vice-versa*, I forget which.
- INS.** Island.
- INS. AND.** Andaman's Islands.
- INS. DARNLEY.** Darnley's Islands.
- INS. IND.** Indian Islands.
- INS. KE.** Ke Islands.
- INS. PELEW.** Pelew Islands.
- INS. VAN.** Vancouver's Island.
- INS. WOODLARK.** Woodlark Island, one of the Louisiades.
- INVER.** The mouth of; as, *Inverary* the mouth of the Ayr.
- IONIAN ISLANDS.** Cephalonia, Zante, Santa Maura, Ithica, Corfu, Paxo and Cerigo, all islands belonging to, and west of Greece.
- IOWA** (*Indian*). One of the U. S. of N. America, lying south of Minnesota, east of Nebraska, west of Illinois, and north of Missouri.
- IRAN.** Persia.
- IRELAND.** One of the British Islands; part of the kingdom of Great Britain.
- IRKUTSK,** } Territory in S. E. Si-
- IRKOOTSK,** } beria. Its capital city,
- IRKOUTSK.** } bearing the same name, is the emporium of Eastern Siberia.
- IRRAWADDI,** } A large river run-
- IRRAWADDY.** } ning through Burmah from north to south.
- ISLANDIA.** Iceland.
- ISLE OF BOURBON.** See Bourbon.
- ISLE OF MAN.** An island in the Irish Sea, south of Scotland, north-west of England.
- ISLE OF PINES.** A West Indian Island, south of western Cuba.
- ISLE OF WIGHT.** In the British Chan-
- nel directly south of Hampshire.
- ISPAHAN.** A city in the centre of Persia, of which kingdom it was formerly the Capital; it is still one of the finest cities in western Asia.
- IT.,** } Italy.
- ITALIA.** }
- JAKUTSK.** Territory in eastern Siberia, on the Lena River, which permeates through it, is the town of Jakutsk, or Yakoutsk, one of the principal depots of the fur trade.
- JALLORE PASS.** A pass in the mountains of Koolloo, one of the northern provinces of Hindostan.
- JAMAICA.** The third largest of the West Indian Islands; it lies south of eastern Cuba.
- JAPAN,** } The Japanese Empire,
- JAPONIA.** } consisting of a chain of large islands east of Tartary and China.
- JAVA.** One of the large islands of Malaysia; it lies south of Borneo and south-east of Sumatra, from which latter it is only separated by the Straits of Sunda.
- JEDDO,** } The capital of the Japanese
- JEDO.** } Empire, is situated on the east coast of the Island of Nippon, and is one of the most populous cities in the world.
- JERUSALEM.** The Holy City, is in the southern half of Palestine, between the Dead Sea and the Mediterranean Ocean, and both wonderful and rare to relate, it is equally the Holy City of Israelite, Christian and Moham-medan.
- JILOLA.** See Gilola.
- JUAN FERNANDEZ ISLANDS.** Masafuera, Masatiera and Goat Is.; three small islands in the Pacific, west of Chili, rendered famous through Defoe's story of Robinson Crusoe, (Alexander Selkirk,) who was left there to take care of himself for ever so long, and who was, if a tithe of what was said about him be true, a most fortunate and ingenious gentleman.
- JUTIA,** } The northern and
- JUTLAND.** } greater part of Denmark.

KALAMAZOO. A town in the south west of Michigan.

KAMTCHATKA, } A peninsula of
KAMTSCHATKA. } Siberia, between the
Okhotsk and Kamtehatka Seas.

KANAWHA. A county in West Virginia. The home of the peerless *Argynnis Diana*.

KANAWHA RIVER. A branch of the Ohio River, in west Virginia, running through the counties of Mason, Putnam, Kanawha and Fayette, and between Raleigh and Greenbrier, and Mercer and Monroe.

KANGAROO ISLAND. An island near the south coast of N. S. Wales Australia.

KANSAS. One of the United States, south of Nebraska, north of Indian Territory, east of Colorado, and west of Missouri.

KE ISLANDS. Directly south of western New Guinea.

KENTUCKY. One of United States of N. Am., divided by the Ohio River on the north from Illinois, Indiana and Ohio, on its east is Virginia, and south of it is Tennessee.

KERN COUNTY. In Southern California, lying north-west of San Bernardino, and south of Tulare counties; it contains a river and a lake of the same name.

This is a sort of a memorial definition; as probably very few persons now living know, and still fewer care, why it was so named, but inasmuch as the three persons to whom this county, river and lake were dedicated, were own brothers to the writer's maternal relative, he of course feels it incumbent to write these few facts. In Philadelphia were three brothers bearing respectively the names of Ben., Richard and Edward Kern, and they were sons of a certain John Kern, who was a "man in place," having for many years, up to the time of his death, which event was caused by the falling of a derrick in the Philadelphia Navy Yard, enjoyed the comforts and emoluments arising from the collectorship of the Port of Philadelphia. The eldest of these brothers, Ben., was a doctor, and the other two, Richard and Edward, were artists—all three were naturalists; many years since, when California was a terra incognita, these brothers accompanied Fremont on his pioneer expedition over the Rocky

Mts., where Ben. had his career rather summarily ended by either the arrows of the noble Indian or from the slower but less painful effects of cold and starvation, which was the proximate cause, has I believe, never been definitely settled, neither at this late date can it be of any material importance. Some years later, in 1853, the second brother, Richard, was massacred along with Gunnison's surveying party on the Sevier river, by Utah Indians, who by these sanguinary means became the joyous possessors of sundry mules, arms and engineering instruments. The youngest and surviving brother, Edward, accompanied Perry's Expedition to Japan, and shortly after the return of the expedition to the United States, he died of heart-sickness, or starvation, or something of the sort, which, however, is also at this late date of no particular import. Whether the name of these brothers was bestowed on the desolate earth and water in question, by Fremont, or themselves, or whether it was an honor conferred by the administration, is a point I am not able to decide, neither does this much matter now, though we will trust it was the latter, as we have no record of any further or other acts of munificence done by a grateful government in acknowledgment of their services and the sacrifice of their lives. *Requiescant*.

N. B. Capt. Gunnison's name is also rendered immortal by an island in the northern part of Great Salt Lake, which, on a very large map, is represented by a spot or two quite the size of a speck of fly dirt.

KIACHTA. A town on the Selenga River in Irkutsk, south east Siberia.

KIRGH., } Great Siberian
KIRGHIS, } deserts south-
KIRGHIS STEPPES. } east of the Ural
River.

KHORASSEN, } North-eastern Persia,
KORASSEN. } bordering on Afghan-
istan and Turkistan.

KODIAK. An island south of Alaska.

KOOLOO. A mountainous district of northern Hindostan.

KORDOFAN. A territory in eastern Africa, south of Nubia, west of Senaar and Abyssinia, and south-east of the Libyan Desert

KOORILE ISLANDS. A chain of small islands, running from near the south point of Kamtehatka to near Yesso, one of the Japanese Islands.

KOORDISTAN. The territory of the Kurds, a mountainous district on the borders of Asiatic Turkey and Persia.

KUMA. A river south of Astrachan,

- in south-east Russia.
- KURDISTAN. *See* Koordistan.
- KURILES. *See* Koorile Islands.
- LABRADOR. The part of British America bordering on the Atlantic, south-west of Greenland. It has a Lepidopterous fauna in which are species found nowhere else on earth, among them *Colias Nastes*, *Aryynnis Polaris*, etc.; these are found at N. L. 57°.
- LABUAN. A small island near the north-west of Borneo.
- LADAK, } A town in north-west
LADAKH. } Thibet.
- LAHORE. A city in the Punjab, in north-west Hindostan.
- LAKE ERIE. *See* Erie.
- LAKE MICHIGAN. One of the five great lakes of N. Am.; it lies between the States of Michigan and Wisconsin, and south of Lake Superior.
- LAKE HURON. *See* Huron.
- LAKE N'GAMI. Great lake in the interior of eastern Africa west from Zanzibar.
- LAKE ONTARIO. One of the great lakes of N. Am.; it lies north-west of State of New York.
- LAKE SUPERIOR. The largest of the five great lakes, it lies between the State of Michigan and Canada West.
- LAKE TCHAD. A great inland Sea in Bornu, Central Africa.
- LAKE WINNEPEG. A lake in the southern part of British America, north-west of Lake Superior.
- LAOS. A part of Farther India, having Tonquin and Cochin China on the east, China on the north, Burmah and Siam on the west, and Cambodia on the south.
- LA PAZ. One of the western districts of Bolivia, the principal town of which bears the same name. Also a town in the southern part of Lower California.
- LAPPLAND, } The most north-
LAPPLONIA, } western part of Russia, above the Arctic line; it borders on the north on the Arctic Ocean.
- LA PUEBLA. One of the Mexican States; its north coast is on the Gulf of Mexico, and its south on the Pacific Ocean. Its capital city bears the same name.
- LIVONIA. A province in western Russia.
- LOANGO. District of Lower Guinea, west coast of Africa.
- LOMBOK. One of the chain of islands directly east of Java; it lies between Bali and Sumbawa. Bali is the island immediately next to Java, and separated from it by the Straits of Bali or Baly.
- LOO CHOO ISLANDS. Off the east coast of China, and south of Japan.
- LOS ANGELOS. A town in the southern part of California, in the county of the same name. It was in the latter that the types of *Hymenites Californica*, *Lycæna Tejua*, *Lycæna Monica*, etc., were taken.
- LOUISIANA. One of the southern United States of N. Am.; originally settled by the French; it is south of Arkansas, west of Mississippi, east of Texas, and borders the Gulf of Mexico on the south.
- LOUISADE ARCHIPELAGO. A number of small islands near the eastern extremity of New Guinea.
- LUSITANIA. Portugal.
- LUZON. The largest of the Philippine Islands, it lies east from Cochin China and south of the island of Formosa, which latter is off the coast of China.
- LYDIA. West and south-west Asiatic Turkey.
- MACASSAR. A town on south-west end of Celebes.
- MACASSAR STRAITS. Run between Borneo and Celebes.
- MACAO. An island and town on the estuary of the Si Kiang River, south-eastern coast of China.
- MACKENZIE'S RIVER. A large river in north-western British America.
- MADAGASCAR. A great island off the south-east coast of Mozambique, Africa, from which it is separated by the Mozambique Channel. It is

- here that *Thaliura Rhipheus*, the most splendid of all known Lepidopterons, is found.
- MADEIRA ISLANDS. Some small islands west of Morocco.
- MADJICA-SIMA. Some small islands north-east of Formosa and south of the Loo Choo Islands.
- MADRAS. The capital of the Presidency of Madras, on the Coromandel coast, south-east Hindostan.
- MADURA. An island in the Java Sea, north of the eastern end of Java.
- MAGELLAN. Straits of Magellan, between Patagonia and Terra-del-Fuego.
- MAINE. The most north-eastern of the United States of N. America.
- MALABAR. The south-western coast of Hindostan.
- MALACCA, } The southernmost part
MALAYA, } of Farther India, and is a peninsula south of Siam, on the west the straits of Malacca divide it from Sumatra, and on the east it coasts the China Sea.
- MALAYSIA. The Asiatic Islands, embracing Sumatra, Java, Borneo, Philippines, Celebes and Moluccas or Spice Islands.
- MANADA. See Menado.
- MANILLA. The capital city of the Philippines, is in the south-western part of the island of Luzon, the largest of that group.
- MANTCHOORIA, } North-eastern part
MANTCHURIA, } of the Chinese em-
MANDSHOORIA, } pire; Amoorland.
- MARACAIBO. A city of Venezuela, on Maracaibo lake near its outlet.
- MAROCO. One of the Barbary States, the most north-western part of Africa.
- MARANHAM. An important commercial town on an island at the mouth of the Maranham River, in the district of same name in the north-east of Brazil.
- MARQUESAS ISLANDS. One of the more eastern of the groups of Polynesia, they are in the same latitude as the south-eastern end of New Guinea.
- MARTINIQUE. One of the lesser Antilles.
- MARYLAND. One of the United States of N. America, south of Pennsylvania and north and north-east of Virginia.
- MASS., } One of the New
MASSACHUSETTS, } England States, it lies east of New York, and south of Vermont and New Hampshire, north of Connecticut and Rhode Island, and on the east it fronts the Atlantic.
- MATABELLA. An island south of Goram, and south-west of New Guinea.
- MATANZAS. A city on the northern coast of western Cuba.
- MAUNA ROA. A volcano in Owhyhee, Sandwich Islands.
- MAUR, } North-west Africa.
MAURETANIA, } Algiers and Morocco.
- MAURITIUS. An island in the Indian Ocean, east of Madagascar and north-east of Isle of Bourbon. *Thaliura Rhipheus* has also been found on this island.
- MD. Maryland.
- MELBOURNE. The capital of Victoria the south-eastern province of Australia.
- MENADO. Town on the north-east of Celebes.
- MERIDA. The capital of Yucatan, is in the north-west of that state, about 25 miles from the coast.
- M., }
MER., } South.
MERIDIONALIS, }
- MEX., } The country of the Mon-
MEXICO, } tezumas, or rather what is left of it; what still remains is bounded on the north and north-east by New Mexico and Texas. The principal pastime of the inhabitants is to cut each others' throats. They have very frequent changes of the administration, sometimes being blest with several in one day. The

- Emperor Maximilian endeavored to establish order and suppress anarchy, but through the interference of the United States, which wanted Mexico for itself, his efforts were rendered abortive, and he shared the fate of other reformers, being ruthlessly murdered by the miserable ruffians who now enact the farce of governing that unhappy country. No measures were taken to avenge his death, and it was with difficulty that the body could be saved from desecration and given up to his family for interment. The fauna of Mexico is beautiful, especially towards the south, but it is worth a man's life to travel through it, as each inhabitant considers him or herself a self-constituted committee of one to murder and rob whoever Providence sends in their way.
- MICHIGAN.** One of the United States of America, its northern boundary is Lake Superior, its eastern Lake Huron, its western Lake Michigan, and on its south are the states of Indiana and Ohio.
- MINAS GERAES.** A district south of Bahia in south-east of Brazil.
- MINDANAO.** The second in size, and the most southern of the Philippine Islands, it lies north of Celebes and north-east from Borneo.
- MINDORA.** One of the Philippine Islands, it lies south of Luzon.
- MINNESOTA** (*Indian*). One of the United States, its northern border is on British America, to its east is Lake Michigan, on its south is the State of Iowa and on its west, Dakotah Territory.
- MISSISSIPPI.** One of the southern United States; it is bounded on the north by Tennessee, east by Alabama, on the west the Mississippi River separates it from Louisiana and Arkansas, and on its south lay Florida and the Gulf of Mexico.
- MISSOURI.** One of the United States; it lies south of Iowa, west of Illinois, east of Kansas, north of Arkansas.
- MOLDAVIA.** An eastern province of Austria, north-east of Wallachia.
- MOLUCCAS.** Spice Islands, a group of islands in Malaysia; they lie south-east of the Philippines, and between New Guinea and Celebes; they consist of Gilola, Morty, Bat-chian, Mysol, Ceram, Bouru, and a number of smaller islands. These are the homes of the splendid *Ornithopteras*.
- MONGOLIA.** The north-western part of the Chinese Empire; west Tartary; its northern boundary is the chain of the Altai Mountains, which separates it from south Siberia; eastwardly it is bounded by Mantchooria, to its south are China and Thibet.
- MONTANA.** Territory of the United States of North America; it joins British America on the north, Dakotah on the east, Wyoming on the south, and Idaho on the west.
- MOREA.** Southern Greece.
- MORETON BAY.** On the eastern coast of New South Wales, Australia.
- MORMON LAND.** Utah, the land of the Salt Sea and Latter-Day Saints, where polygamy is allowed by law, and though it is one of the Territories of the United States of North America, that great government has been unable to enforce the federal laws against a plurality of wives, for when the United States troops were sent to enforce those laws, the army of saints vanquished them—yea, hip and thigh—and Uncle Samuel could but weep in silence and let his degenerate children in Utah go to perdition the quickest way possible, i. e., in the arms of as many wives as they could feed or starve.
- MORTY.** The most northern of the Moluccas or Spice Islands, it is separated from Gilola on the north-east by Morty Straits.
- MOULMIEN.** A town near the mouth of the river Martaban in eastern Martaban, India.
- MOZAMBIQUE.** Territory on the south-

- east coast of Africa ; between it and the great island of Madagascar runs the channel of Mozambique. It was in this Territory that the resplendent *Thaliara Cræsus* was discovered.
- MT. BUREIA. In Amoorland.
- MT. DIABLO. A mountain in Contra-Costa County, west California, it is here that the most beautiful of the N. American Lycænidæ, *Lycæna Regia*, is taken.
- MT. GOTHARD. One of the peaks of the Swiss Alps, 9,975 feet high.
- MT. TOM. One of the White Mountains of New Hampshire.
- MT. WASHINGTON. The highest peak of the White Mountains of New Hampshire, 6,226 feet in height. On this mountain is found *Chionobas Semidea*, *Arctia Quenseldi*, *Anarta Cordigera*, and other Arctic or Alpine species.
- MUNDUS. The world.
- MYSOL. One of the Moluccas or Spice Islands ; it is south-east of Gilola, east of Oby, north of Ceram, and west of New Guinea.
- MYSORE. A district in which is also a town of same name, in south-west Hindostan.
- MYSORY. An island near the north-west coast of New Guinea.
- N. AM., } North America, embracing British Columbia, Alaska, United States and Mexico.
- N. AMER. }
- NANKIN. One of the principal cities of China, is near the mouth of Yangtse-Kiang River, in eastern China.
- NATAL. Port Natal, on the south-east coast of Africa. Many beautiful Saturnidæ are found here, among them *Gyanissa Isis*, *Actias Mimosa*, *Antheraea Menippe*, *A. Arata*, *Hyalophora Mythimæa*, etc.
- NAPA. A county in western California. One of the principal localities for that most beautiful of all known Coliadæ, *C. Eurydice*.
- NAPO. A branch of the Amazon, running through central Ecuador.
- NAUTA. On the Amazon, near the southern boundary of Ecuador.
- NEBRASKA. One of the United States ; it lies south of Dakotah, east of Colorado and Wyoming, north of Kansas, and west of Iowa, from which latter it is separated by the Mississippi River.
- NEELGHERRY, } Blue Hills, in
NEELGHERRIES, } the southern part
NEILGHERRIES, } of Mysore and ad-
NILGERRIES. } jacent districts of Hindostan.
- N'GAMI. See Lake N'Gami.
- NEPAL, } One of the north-eastern
NEPAUL. } districts of Hindostan, bordering on the north on the Himalayas.
- NEVADA. One of the United States of N. Am. ; it lies east of California, south of Oregon, and west of Utah and Arizona.
- NEW BRITAIN. An island north-east of New Guinea, separated from it by Dampier's Straits.
- NEW BRUNSWICK. A province of British America, east of the State of Maine.
- NEW CALEDONIA. An island in Australasia, east of Australia, south of New Hebrides, and north-west of New Zealand.
- NEW ENGLAND, } The six Uni-
NEW ENGLAND STATES. } ted States east of New York ; they are Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island.
- NEWFOUNDLAND. A large island in the Atlantic Ocean ; it is separated from south Labrador by the Straits of Belle Isle.
- NEW FREIBURG. A settlement in south-east Brazil. *Eudæmonia Derecto*, of Maassen, one of the most wonderful of known Heteroceræ (moths), was discovered here ; there are so far but three species known to this genus, viz. : *E. Semiramis*, Cram., *E. Derecto*, Maassen, and *E. Jehovah*, Strecker, distinguished by the immense length of the tails of the hind wings, which in *Semiramis* ♂ measure five inches.

NEW GRANADA. See Columbia.

NEW GUINEA. One of the largest of the Pacific islands; is in Australasia, north of Australia, from which it is separated by Torres Straits; its inhabitants are oriental negroes; the flora and Lepidopterous fauna are exceedingly rich.

NEW HAMPSHIRE. One of the New England States; it lays west of Maine, east of Vermont, and north of Massachusetts; in this state are the White Mountains, having a curious Arctic and Alpine fauna.

NEW HEBRIDES. A group of islands in Australasia; they are north-east of Australia, north of New Caledonia, south-east of New Guinea, and west of the Feejee Islands.

NEW HOLLAND. Australia.

NEW IRELAND. An island in Australasia, north-east of New Guinea.

NEW JERSEY. Although not generally so considered by Americans, really is one of the United States of N. Am.; it lies south of New York, east of Pennsylvania, and its eastern shores are on the Atlantic Ocean. In its swamps are good collecting grounds for the Lepidopterist.

NEW MEXICO. Territory of the United States of N. Am., lying north of Mexico, east of Arizona, west of Texas, and south of Colorado. It is the locality of the splendid *Papilio Pylumnus* and *P. Daunus*, and other fine species.

NEW ORLEANS. The capital of the State of Louisiana; it is situated on the left bank of the Mississippi, about a hundred miles from the sea.

NEW SOUTH WALES. The eastern district of Australia; it lies south of North Australia, east of South Australia, and north of Victoria. Sydney, the capital of Australia, is on its east coast.

NEW YORK. One of the United States; it lies west of the New England States, south of Canada, and north of Pennsylvania; its principal city—of the same name—

on its south-eastern point, is the metropolis of eastern N. America.

NEW ZEALAND. A large island, or rather two contiguous, large islands, divided by Cooke's Straits; the northern part is called New Ulster, and the southern New Munster; it lies south-east of Australia. One of the principal articles of export is the embalmed heads of the natives; these are splendidly tattooed, and when one chief overcame another in war, the head of the vanquished party was beautifully embalmed, but the demand for the article among civilized collectors became so large that a domestic market was established, by tattooing the faces of slaves and subjects, then slaughtering them and passing their heads off on the unsuspecting customer as those of genuine chiefs. This is, or was, also where those missionaries, who were emulous to obtain the crown of martyrdom, went for that delectable purpose, when the obliging natives speedily fulfilled their pious wishes by butchering and afterwards feasting on them.

NIAS. An island off the north-west of Sumatra.

NICARAGUA. One of the states of Central America; it has Costa Rica on its south, the Gulf of Mexico on its east, Honduras on its north, and the Pacific Ocean on its south-west.

NICOBAR, } Islands in the
NICOBAR ISLANDS, } Indian Ocean,
NIKOBAR ISLANDS. } north-west of
Sumatra, west of Malacca, and south of Andaman Islands.

NIGER. One of the great rivers of Africa; flows through the eastern part of Upper Guinea, and thence into Soudan.

NILE. A large river, rising in Central Africa, where it has the name of the White Nile, running northward, through Nubia and Egypt, and emptying into the Mediterranean Sea.

NING-PO. A city in the province of Che-Kiang, on east coast of China.

- NIPHON.** The largest of the islands comprising the Japanese Empire. Jeddo, the capital of the empire, is on the east coast of this island.
- NORTH AUSTRALIA.** The north-eastern part of Australia; its northern and eastern shores are on the Pacific, on the west it is bounded by West Australia, and on the south by New South Wales and South Australia.
- NORTH CAROLINA.** One of the southern United States of N. Am.; its eastern shore is on the Atlantic Ocean, on the north it is bounded by Virginia, and its south by South Carolina.
- NORV.,** } The north-western
NORVEGIA, } part of Europe, border-
NORWAY. } ing on the Northern Ocean.
- NOVA HOLLANDIE.** New Holland, Australia.
- NOVA SCOTIA.** The most south-eastern of the provinces of British America; it is a peninsula, connected with the south-eastern part of New Brunswick, and separated from the south of it, and from the State of Maine, by the Bay of Fundy.
- NOVA ZEMBLA.** A large island in the Arctic Ocean, north of Russia.
- NUBIA.** A country in East Africa, lying south of Egypt, north of Abyssinia, east of the Libyan Desert, and with its western shore on the Red Sea.
- NUKAHIVA.** One of the Marquesas, or Washington Isles.
- OAXACA.** One of the most southern divisions of Mexico; its south coasts on the Pacific Ocean, to its east is Tehuantepec, on the north Vera Cruz, and on the west La Puebla.
- OBI,** } One of the Moluccas, or
OBY. } Spice Islands; it lies south of Gilola, west of Mysol and New Guinea, and north of Ceram.
- OBYDOS.** A town on the upper Amazons, north-west Brazil.
- OC.,** } Western; to the
OCCIDENTALIS, } west; belonging to
OCCIDENTAL. } the west.
- OCHOTSK.** Territory of eastern Siberia, bordering on the Ochotsk Sea; its principal settlement—of the same name—is one of the great fur-trade depots.
- OCEANICA.** The islands in the Pacific Ocean, comprising Malaysia, Australasia and Polynesia.
- OESTERREICH.** Austria.
- OHIO.** One of the United States of N. Am.; it lies south of Lake Erie and Michigan, west of Pennsylvania, east of Indiana, and north of Kentucky and Virginia.
- OKKAK.** A station on the north-east coast of Labrador.
- OKHOTSK.** See Ochotsk.
- OLD CALABAR.** A settlement, east of New Calabar, in eastern part of Upper Guinea, West Africa.
- ONTARIO.** See Lake Ontario.
- OR.,** } East; eastern; per-
ORIENTALIS, } taining to the east; as,
ORIENTAL. } Europe or, eastern Europe.
- ORB.,** } The world.
ORBIS. }
- OREGON.** One of the most western of the United States of N. America; the Pacific washes its western shore, on its north is Washington Territory, to its east is Idaho, and on its south California and Nevada.
- ORINOCO.** A large river, running through Venezuela from east to west.
- ORIZABA,** } A mountain peak on
ORIZAVA. } the western border of Vera Cruz, Mexico; it is 17,370 feet high.
- OST, Ger.** East.
- OSTLICH, Ger.** Eastern.
- OTAHEITE.** The largest of the Society Islands.
- OTTOMAN EMPIRE.** The Turkish Empire—European and Asiatic Turkey, and the Baschalic of Egypt.
- OUDE.** A district in northern Hindostan; it lies south of Nepal and east of Delhi.
- OVALAU.** One of the Fiji Islands.
- OWEN'S LAKE.** In Inyo County, southern California.

- OWHYHEE.** One of the Sandwich Islands. *See* Hawaii.
- PALEMBANG.** A settlement in the southern part of Sumatra.
- PA.** Pennsylvania.
- PACHACAMAC.** A small town not far from Lima, Peru. It was the scene of some of the depredations of Pizarro; in the time of the conquest it was the site of a great temple to the god Pachacamac, part of the ruins of which still remain.
- PAGOSA.** A village and springs in S. W. Colorado.
- PALAMOW.** A district in the Presidency of Bengal, Hindostan.
- PALENQUE.** A village in Chiapas, near which are the wondrous ruins of ancient palaces, idols, etc., which, be it spoken to the shame of the United States, are, along with those of Copan, allowed to decay in the wilderness whilst a little energy, and a trifle of the money annually scandalously squandered by Government, would transmit them to a place of safety in some public institution.
- PACIFIC COAST.** West coast of N. America.
- PACIFIC SLOPE.** That part of the United States west of the Rocky Mountains.
- PALAWAN.** An island in Malaysia, north-east of Borneo and south-west of Mindora and Luzon.
- PALESTINE.** The Holy Land; in the south-western part of Asiatic Turkey.
- PANAMA.** The narrow tract of country which connects North and South America.
- PAPUA.** *See* New Guinea.
- PARA.** A district in the north of Brazil; a city near the mouth of the Para River, in northern Brazil. This region is enormously rich in Lepidoptera and other orders of insects.
- PARAGUAY.** One of the States of S. America; it is south of Bolivia, and north-east of Buenos Ayres.
- PARANA.** A district in the south of Brazil; its eastern boundary is the Atlantic.
- PATAGONIA.** The southernmost part of S. America.
- PEBAS.** A town on the Amazon, in the south-east of Ecuador.
- PEKIN.** The capital city of the Chinese Empire, is in the north-east of China proper, near the Great Wall.
- PELEW ISLANDS.** A group of small islands in Polynesia, northward of New Guinea, and eastward of the Philippines.
- PENANG.** *See* Pulo Penang.
- PENNA.,** } One of the Uni-
PENNSYLVANIA. } ted States of N.
Am.; it is south of New York, west of New Jersey, north of Maryland, and east of Ohio.
- PERNAMBUCU.** One of the north-eastern provinces of Brazil; its principal city—of same name—is of considerable commercial importance.
- PERS.,** } Lies east of Asiatic Tur-
PERSIA. } key, north of the Persian Gulf—which separates it from Arabia—west of Afghanistan and Beloochistan, and south of Georgia and Turan, or Turkistan.
- PERU.** One of the western of the South American States, bordering on the Pacific; it lies south of Ecuador, and west of Brazil and Bolivia.
- PHIL.,** } One of the prin-
PHILA., } cipal cities of the
PHILADELPHIA. } United States of N. America; situated on the Delaware River, in the south-eastern part of Pennsylvania. It is here that the PHILA. ACADEMY OF NATURAL SCIENCES, and the AMERICAN ENTOMOLOGICAL SOCIETY are located, and have built and sustained themselves, amidst all sorts of difficulties, entirely by the means and exertions of their members; for to look for aid to the United States Government, in anything that is great or good, would be as fruitless as to look to the Government of Dahomey.

- PHILIPPINES, } A group of
PHILIPPINE ISLANDS. } large islands
in Malaysia, lying north-east of
Borneo, and eastward of Farther
India; the largest of them are Lu-
zon, Mindanao, Mindora and Samar.
- PIEDMONT. In the north-western
part of Italy, separated from Swit-
zerland on the north by the Pennine
Alps.
- PIKE'S PEAK. One of the highest of
the Rocky Mts. in Colorado, and
about 11,500 feet high.
- PILATKA. A small town in Putnam
County, Florida.
- POLAND. Once independent, now a
part of the Russian Empire, is in the
western part of Russia, adjoining
Prussia.
- POL., } Polar; pertaining to the
POLARIS. } Arctic regions.
- POLAR-LAND. See Arctic regions.
- POLYNESIA. That portion of Oceania
east of Malaysia and Australasia,
contains Navigator's Is., Friendly
Is., Marquesas Is., Sandwich Is.,
Ladrone Is., etc., etc., etc.
- POMERANIA. A northern Province
of Prussia.
- PONDICHERY. A French Settlement
in Coromandel, Hindostan.
- PONT., } North-east Asia Minor,
PONTUS. } Amasia and Tokat.
- POONAH. District in the Presidency
of Bombay, India.
- PORT DENNISON. In eastern Aus-
tralia; the locality of *Ornithoptera*
var. *Cassandra*.
- PORT NATAL. See Natal.
- PORTO RICO. The fourth in size of
the West Indian Islands; it is di-
rectly east of Hayti, or St. Domingo.
- POSEN. One of the eastern provinces
of Prussia, formerly a part of Po-
land.
- PO YANG. A great lake in Kiangse,
China.
- PREUSSEN. Prussia.
- PRINCE OF WALES' ISLAND. See
Pulo Penang.
- PULO PENANG. Or Prince of Wales'
Island; an island near the west
- coast of Malaya, in the Straits of
Malacca, between Malaya and Su-
matra.
- PYRENEES. Chain of mountains be-
tween south France and north Spain.
- QUITO. The capital city of Ecuador,
is in the western part of that state,
on the side of the volcano Pichincha,
9,500 feet above the sea.
- QUEENSLAND. A district of Australia.
- RADACK ISLANDS. In Mulgrave's
Archipelago, north-east from New
Guinea.
- RAJAHMUNDRY. A town near the
mouth of the Godavery River, east
coast of Hindostan.
- REG. ARCT., } The Arctic
REGIONES ARCTICÆ. } regions; north
of the Arctic Circle.
- REG. IND., } Hindostan and
REGIO INDICO. } Farther India.
- REPULSE BAY. A small bay on the
Arctic Circle, below Melville Penin-
sula, in British America.
- RHODE ISLAND. The smallest of the
United States of N. Am.; it lies
east of Connecticut and south of
Massachusetts.
- RHODES. An island near the west
coast of Asiatic Turkey.
- RIESEN GEBIRGE. A range of hills
in eastern Saxony, and between
Saxony and Silesia.
- RIO. River.
- RIO JANIERO. The capital of Brazil,
situated on a fine harbor on the
south-east coast.
- RIO NAPO. A branch of the Amazon,
in central Ecuador.
- RIO NEGRO. The north-western pro-
vince of Brazil; its principal river
—of the same name—is a branch of
the Amazon.
- ROCKY MOUNTAINS. The great chain
of mountains running from north to
south through the whole western
part of North America.
- RODRIGUEZ. A small island east of
Mauritius.
- ROIOL. One of the Philippines,
north of Mindanao.

- ROSS.,
ROSSIA, } Russia.
RUSSLAND, *Ger.* }
- RUPERT'S HOUSE. A fort, formerly on the south-east shore of Hudson's Bay.
- RUPERT'S LAND. The territory in British America, to the south and south-east of Hudson's Bay.
- SAGHALIEN. A long, narrow island, east of Mantchooria and separated from it by the Gulf of Tartary.
- SAHARA. The immense desert occupying the great part of northern Africa.
- SALT LAKE CITY. The capital of Utah, on the River Jordan, near Great Salt Lake.
- SAMAR. One of the Philippine Islands.
- SALWATTY. An island to the extreme west of New Guinea, from which it is separated by a narrow strait.
- SAMARCAND. On the Kohuk River, in Bokhara, southern Turkistan; was one of the most noted cities of Asia.
- SAMBEANG. A settlement near the western coast of Borneo.
- SAMOA. One of the Shiffer Islands, north-east of the Friendly and Fiji Islands.
- SANDAL-WOOD ISLAND. An island of Malaysia, south of Flores, south-east of Java and Sumbawa, and west of Timor.
- SAN DIEGO. The southernmost county of California. One of the localities of *Lycena Regia* and *Anthocharis Cooperi*. Its principal town—bearing the same name—is on San Diego Bay, on the west coast.
- SANDWICH ISLANDS. A group of islands in the north-east of Polynesia; they comprise Oahu, the residence of their king, Hawaii and some smaller ones.
- SAN, }
SANCTA, } Saint.
SANTA. }
- SAN FRANCISCO. The capital of California and the metropolis of the western United States of N. Am., is situated on a neck of land on the west coast.
- SAN SALVADOR. A state of Central America, east of Guatemala, south of Honduras, and with its south bordering on the Pacific Ocean. Bahia, a city of Brazil, is also sometimes called San Salvador.
- SANTA LUCIA. One of the Lesser Antilles, directly south of the Island of Martinique.
- SANTA MARTA. One of the northern provinces of Columbia. The town of Santa Marta is at the mouth of the Magdalena River.
- SANTAREM. A town on the Amazon, in Para District, northern Brazil.
- SARAWAK. North-western coast of Borneo. One of the localities of the splendid *Ornithoptera Brookiana*.
- SARDINIA. The kingdom of Sardinia—the north-western part of Italy. Also a large island in the Mediterranean, south of Corsica and north-west of Sicily.
- SAREPTA. The south-east deserts of Russia.
- SAX., }
SAXONIA, } A kingdom of Germany,
SAXONY. } south of Prussia and north-west of Austria.
- SCANDINAVIA. Sweden and Norway.
- SCHLARAFFEN-LAND. Utopia, Fools' Paradise.
- SCHWEITZ. Switzerland.
- SCOTIA. Scotland.
- SENEGAL. }
SENEGAMBIA. } The most western part of Africa, south of Great Desert and west of Soudan.
- SEPT., }
SEPTENTRIONALIS. } North.
- SERPA. A town on the Guadiana River, in southern Portugal. Also a town on the Upper Amazon, northern Brazil.
- SEYCHELLES, }
SEYCHELLE ISLANDS. } A cluster of small islands in the Indian Ocean, east of Zanzibar, Africa, and north-east of Madagascar.
- SHANGHAI. A city in the Kiang-Soo District, on the east coast of China.

- SHERBOROUGH ISLAND. Near the coast of Sierra Leone, west Africa.
- SIAM. A kingdom of Farther India, bordering on the south on the Gulf of Siam, on its east is Cochin China, and to its north is Laos.
- SIAO. A small island, north of the north-east point of Celebes.
- SIBERIA. The Russian possessions in Asia, comprising all that part north of the Chinese Empire and Turkistan, and east of Russia proper.
- SICILIA, } A large island, south-
SICILY. } west of Italy, from which
it is separated by the Straits of Messina.
- SIERRAS. Mountains.
- SIERRA LEONE. A small district on the west coast of Africa, south of Senegambia and north of Liberia.
- SIERRA NEVADA. The snowy mountains of California, running north and south along the west coast.
- SIKIM. A small province in north-east of Hindostan, between Bhotan and Nepaul.
- SILESIA. The south-eastern province of Prussia, adjacent to Poland.
- SIMAO. A small island in Malaysia, directly west of the island of Timor.
- SIMLA. An English sanitary station on the lower Himalayahs.
- SINAL. A mountain in Arabia Petrea, north-west Arabia; its height is 7,500 feet.
- SINGAPORE. A town and island directly south of Malaya.
- SMYRNA. The chief emporium of the Levant—is a city on the west coast of Asiatic Turkey.
- SOCIETY ISLANDS. A group of islands in Polynesia; they are east of the Friendly Islands, south-east of the Navigator's, and south-west from the Marquesas.
- SOLOR. Island in Malaysia, adjacent to Timor.
- SONGARIA. Territory south and south-west of the Altai Mountains.
- SONORA. One of the north-western states of Mexico; its west is on the Gulf of California.
- SOOLOO ISLANDS. Three islands—Talyabo, Mangola and Bessy—between Celebes and Moluccas, north-west of Bourro.
- SOUTH CAPE. The southernmost point of Van Dieman's Land.
- SOUTH CAROLINA. One of the United States of N. Am.; its east is on the Atlantic Ocean, its north on North Carolina, and its south-west on Georgia.
- SPICE ISLANDS. *See* Moluccas.
- SPAIN. The south-western peninsula of Europe.
- STADT (*German*). A city.
- ST. DOMINGO. *See* Haiti.
- ST. PAULO. A town on the Amazon, in the north-west of Solimoes district, west Brazil. Also a town on Joannes Island at the mouth of Para River, on northern coast of Brazil.
- SÜD (*German*). South.
- SUECIA. Sweden.
- SUMBAWA. Island in Malaysia, lies between Lombok and Flores, and south-west from Celebes.
- SUMATRA. An immense island, south of Malaya, west of Borneo and north-west of Java.
- SURINAM. Dutch Guiana; its north is on the Atlantic; it is separated from British Guiana, on the west, by the River Corentyn, and on the east, from Cayenne, by the Maroni River. A country with a most marvelous Lepidopterous fauna.
- SWAN RIVER. On the coast of south-western Australia.
- SWITZERLAND. A mountainous country north of Italy, east of France and south and west of Germany.
- SWISS ALPS. The mountains of Switzerland.
- SYDNEY. On the south-east coast—is the capital of Australia.
- SYRIA. South-western Asiatic Turkey.
- TABATINGA, OR JABATINGA. A town on the Amazon, in the extreme south-west of Rio Negro district, north-west Brazil.
- TAITI, OR OTAHEITE. The largest of the Society Isles.

TAI-WAN. *See* Formosa.

TAPAJOS. One of the great arms of the Amazon, in Para, northern Brazil.

TARTARIA CHIENSIS. Chinese Tartary—includes Mantchooria, Mongolia, etc.

TASMANIA, OR VAN DIEMAN'S LAND. A large island, south of New South Wales, Australia.

TENASSERIM. A district on the west coast of Farther India, above Malaya.

TENERIFFE. The largest of the Canary Islands; its peak is over 12,000 feet high.

TENNESSEE. One of the United States of N. Am.; it lies south of Kentucky and north of Mississippi, Alabama and Georgia.

TERIOLIS. Tyrol.

TERNATE. One of the Moluccas—west of Gilola.

TERRA DEL FUEGO. Land of Fire; south of Patagonia, from which it is separated by Magellan's Strait.

TEXAS. The largest of the United States of N. Am.; it joins Mexico on the south-west, Indian Territory on the north, Louisiana on the east, and its south-east borders on the Gulf of Mexico.

THIBET. Part of the Chinese Empire; lies north of eastern Hindostan, west of China proper and south of Mongolia.

TIMOR. An island in Malaysia, south-west of New Guinea, south of Moluccas and south-east of Celebes.

TOCANTUS. A large river in north-western Brazil.

TONDANO. An island near Celebes.

TRANSCAUCASIA. The country lying between the Caspian and Black Seas, south of the Caucasian Mountains and north of Asiatic Turkey and Persia.

TRINIDAD. An island near the north-east of Venezuela.

TULBAGH. A town in Worcester, Cape Colony, southernmost part of Africa; named after the old colonial governor, Ryk Van Tulbagh, who

was much devoted to Natural History.

TURCIA. Turkey; the Turkish Empire.

TURAN, } Independent Tar-
TURCOMANIA, } tary; lies south-west
TURKISTAN. } of Siberia, west of Chinese Tartary, east of the Caspian Sea and north of Persia and Afghanistan; its northern part is occupied by the Khirguis and its southern by the petty kingdoms of Bokhara, Khokan and Khiva, each ruled by a Tartar chief or king. It is here that the rare and gloomy-looking *Arriopena Maura*, one of the largest of the Arctiidae, is found.

TY. Territory.

TYROL. The most western province of Austria, bordering on north-east Italy.

UCAYALI. A district in the north-east of Peru; it is watered by a branch of the Amazon, of the same name.

UKRAINE. Regions on the River Dnieper, Little Russia.

UNIO AMER. United States of North America.

URAL MOUNTAINS. Great range of mountains in east Russia, and between Russia and Siberia.

URUGUAY. A state of S. America, south of Brazil and east of Buenos Ayres.

U. S. Abbreviation of United States of N. America; also of Uncle Sam, the familiar name by which the people of the United States designate their government.

UTAH. *See* Mormon Land.

VALAIS, } One of the southern
VALESIA. } Cantons of Switzerland.

VALPARAISO. The most noted port of Chili, on the west coast of South America.

VANCOUVER'S ISLAND. A large island south-west of British America and north-west of Washington Territory.

VAN DIEMAN'S LAND. *See* Tasmania.

VANNA VALAVA. One of the Fiji Islands.

- VARINAS.** A town in north-western Venezuela.
- VENEZUELA.** One of the northern states of S. America; it lies on the north on the Caribbean Sea, to its west is New Granada and to its east British Guiana.
- VERA PAZ.** One of the Central American States; it is north of Guatemala and west of Balize.
- VERMONT.** One of the New England or Eastern United States; it is east of New York, west of New Hampshire, south of Canada and north of Massachusetts.
- VILLA NOVA.** A town near the mouth of Amazon, in Para district, northern Brazil.
- VIRGINIA.** One of the Southern United States of N. Am., is south of Maryland and north of North Carolina.
- VIRGINIA CITY.** A city in extreme western part of Nevada.
- WAIGIOU.** An island near the north-west point of New Guinea.
- WALES.** Part of the British Kingdom.
- WALLACHIA.** A district in the north-east of European Turkey, south of Moldavia and north of Bulgaria.
- WALLIS** (*German*). Valais, Valesia.
- WASHINGTON CITY.** The capital of the United States of N. America—is on the Potomac River, in the District of Columbia.
- WASHINGTON.** Territory of the United States of N. Am., on the Pacific coast; it lies north of Oregon, south of British America and west of Idaho.
- WEST INDIES.** Great and Lesser Antilles; a great number of large and small islands south and south-east of the United States, and north and north-east of S. America. The four principal ones are Cuba, Jamaica, Haiti and Porto Rico, but there are as many smaller ones as there were saints in the calendar to name them after.
- WEST VIRGINIA.** The western part of the old State of Virginia, which was separated from the latter during the late war; it lies east of Ohio and Kentucky, south of Pennsylvania and north-west of what is left of the old Virginia.
- WHITE MOUNTAINS.** In the State of New Hampshire; the principal ones are Mt. Madison, 5,420 feet high, Mt. Jefferson, 5,660 feet high, Mt. Adams, 5,760 feet high, and Mt. Washington, 6,226 feet high.
- WHITE NILE.** The lower Nile.
- WINNEPEG LAKE.** A lake in British America, north-west of Lake Superior.
- WISCONSIN.** One of the United States of N. Am.; it is north of Illinois, west of Michigan, east of Minnesota.
- WOODLARK ISLAND.** One of the Louisades.
- WYOMING.** Territory of the United States of N. Am.; south of Montana, east of Idaho, west of Dakota and Nebraska and north of Colorado.
- YAKOUTSK.** A great tract of east Siberia; its chief town is of the same name, and is a great fur depot on the Lena River.
- YEDDO, OR JEDDO.** The capital of Japan.
- YELLOWSTONE.** A branch of the Missouri River, running through the eastern half of Montana.
- YLOE.** One of the Philippine Islands, west of Mindora.
- YOSEMITE.** Mountains and Valley in Mariposa County, California; in the high mountains of this range are found the dark-green *Colias*, *Behrii*, and the rare *Argynnis Leto*.
- YUCATAN.** A peninsula of Central America.
- ZAMBESI.** A river in eastern Africa, between Mozambique and Sofala.
- ZAMBOANGO.** A town on the west point of Mindanao.
- ZANTE.** One of the Ionian Isles.
- ZANZIBAR.** An island off the coast of Zanguebar, east Africa.
- ZWELLENDEM.** The southernmost part of Cape Colony—contains a town of the same name.

CATALOGUE

OF THE

AMERICAN MACROLEPIDOPTERA

NORTH OF MEXICO.

Those species of which I possess the author's original types are prefixed with a ‡.

Those that are unknown to me in nature are denoted by a †.

Such as are wanting to my collection are designated by a *.

RHOPALOCERA.

FAMILY I. PAPILIONIDÆ.

GENUS I. PAPILIO L.

1. PHILENOR, LINN., Mant., p. 535, (1771); Abb.-Smith, Ins. Ga., I, t. 3, (1797); Godt., Enc. Meth., IX, p. 40, (1819); Say, Am. Ent., t. I, (1824); Bdl.-Lec., Lep. Am. Sept., p. 29, t. 11, (1833); Bdl., Sp. Gen. I, p. 324, (1836); Lucas, Lep. Exot., p. 15, t. 8, (1835); Morris, Syn., p. 6, (1862); Kirby, Cat., p. 521, (1871).
Astinous, Drury, Ill. Ex. Ent., I, t. 11, (1773); Cram., Pap. Ex., III, t. 208, A, B, (1782).
Princeps dominans Philenor, Hüb., Exot. Schmett., I., (1806-1824).
 Larva on *Aristolochia*.
2. DEVILLIERSII, GODART, Mem. Soc. Linn. Paris, II, t. I, (1822); Enc. Meth., IX, Sup. p. 810, (1823); Kirby, Cat. p. 520, (1871).
Villiersii, Bdl.-Lec., Lep. Am. Sept., p. 36, t. 14, (1833); Bdl., Sp. Gen. I, p. 325, (1836); Morris, Syn., p. 12, (1862).
 If found at all in the U. S., confined to the lower part of Florida.
3. POLYDAMAS, LINN., Mus. Lud. Ulr., p. 192, (1764); Syst. Nat. I, 2, p. 747, (1767); Drm., Ill. Ex. Ent., I, t. 17, (1773); Fab., Syst. Ent., p. 447, (1775); Sp. Ins., II, p. 8, (1781); Mant. Ins., II, p. 4, (1787); Ent. Syst., V, p. 14, (1793); Cram., Pap. Ex., III, p. 33, t. 221, (1782); Godt., Enc. Meth., IX, p. 39, (1819); Bdl.-Lec., Lep. Am. Sept., p. 37, t. 15, (1833); Bdl., Sp. Gen., I, p. 321, (1836); Lucas, Lep. Exot., p. 33, t. 17, (1835); Morris, Syn.,

United States and Territories from Atlantic to Pacific. Mexico.

? Florida
Cuba.

? Florida
West Indies,
Mexico,
Cent. Am.

p. 13, (1862); Kirby, Cat., p. 521, (1871); Merian, Ins. Sur., t. 31, (1705); Seba, Thes., IV, t. 39, (1765).

Princeps dominans P., Hüb., Ex. Schmett., (1806–1824).

Larva found on various plants of the genus *Aristolochia*.

4. MYLOTES, BATES, Trans. Ent. Soc., Ser. III, Vol. V, p. 346, (1861); Kirby, Cat., p. 530, (1871). S. California Mexico, Panama, Nicaragua.

Two ♂, formerly in coll. Tryon Reakirt, were taken in S. California, and received from Dr. Heerman in 1862.

5. AJAX, LINS., Syst. Nat., I, 2, p. 750, (1867); Fab., Syst. Ent., p. 455, (1775); Abb.—Smith, Ins. Ga., I, t. 4, (1797); Godt., Enc. Meth., IX, p. 53, (1819); Bdl.—Lee, Lep. Am. Sept., p. 4, t. 1, (1833); Bdl., Sp. Gen., I, p. 258, (1836); Morris, Syn., p. 8, (1862); Kirby, Cat., p. 558, (1871). United States east of Texas, excepting the New England States.

Marcellus, Cram., Pap. Ex., II, t. 98, F. G., (1779).

Ajax var. *Walshii*, W. H. Edwds., Butt. N. Am., I, t. 1, Pap., (1871).

- var. a. TELAMONIDES, FELDER, Reise Nov. Lep., I, p. 60, (1865); W. H. Edwds., Butt. N. Am., I, t. 11, Pap., (1871); Kirby, Cat., p. 558, (1871).

A form of gen. I intermediate between *Ajax* (gen. I) and *Marcellus* (gen. II).

- var. b. ABBOTT, W. H. EDWDS., Butt. N. Am., I, p. 2, t. 11, Pap., (1871).

Like *Ajax*, but with the lower half of mesial bar strongly suffused with crimson on upper surface of secondaries.

- var. c. MARCELLUS, BDL.—LEC., Lep. Am. Sept., p. 8, t. 2, (1833); Bdl., Sp. Gen., I, p. 237, (1836); Morris, Syn., p. 9, (1862); W. H. Edwds., Butt. N. Am., I, t. III, Pap., (1871); Kirby, Cat., p. 558, (1871).

P. Ajax, Esper, Schmett. I, t. 51, (1780).

Princeps heroicus Ajax, Hüb., Sam. Ex. Schmett., (1806–1824).

Iphioides Ajax, Hüb., Verz. Bek. Schmett., p. 82, (1816).

The second brood; larger; tails much longer, and heavily edged with white nearly their whole length; at anal angle of inferiors a crimson spot, sometimes two, instead of the bar of gen. I.

Larva feeds on pawpaw (*Asimina triloba*, Gray).

6. SIXON, FABR., Syst. Ent., p. 452, (1775); Sp. Ins., II, p. 15, n. 59, (1781); Mant., Ins., II, p. 8, n. 67, (1787); Ent. Syst., III, p. 26, n. 75, (1793); Cram., Pap. Ex., IV, t. 317, C, D, (1782); Godt., Enc. Meth., IX, p. 53, (1819); Bdl.—Lee, Lep. Am. Sept., p. 11, t. 3, (1833); Bdl., Sp. Gen., I, p. 260, (1836); Morris, Syn., p. 9, (1862); Kirby, Cat., p. 557, n. 269, (1871). ? Florida Antilles.

P. Protesilaus, Dru., Ill. Ex. Ent., I, p. 57, t. 22, f. 3, 4, (1773).

P. Zonaria, Butler, Ent. Mo. Mag., V, p. 271 (1869); Kirby, Cat. p. 557, n. 267, (1871).

This species has been from time almost immemorial confounded with its ally (or perhaps var.) *Celadon*, Lucas. Cramer figured on t. 317, (Vol. IV), four figures, C, D, E, F, which purported to show both surfaces of the two sexes of *Sinon*, but E, F, which he represents as the ♀ is *Celadon*. Drury's name, *Protesilaus*, would have held for this species (*Sinon*) had it not been given previously by Lin. to another insect. Fabricius in Syst. Ent., (1775), first designated Drury's "*P. Protesilaus*, Dru., I, t. 22, 3, 4," as *Sinon*. Later, in his Sp. Ins., (1781), he mixed up with it and quoted *P. Poticenes*, Cram., (I. t. 37, A, B,) a W. Afr. Sp., as a synonym of *Sinon*, (*Protesilaus*, Dru. nec Lin.) In his Mantissa, (1787), he confounds *Sinon* and *Celadon* as Cramer had done, "*Papilo Sinon*, Cram., Ins., 27, tab. 317, fig. C, D, E, F." In the Ent. Syst., (1793), he repeats the error, "*Cram.*, Ins., 27, tab. 317, fig. C, D, E, F, *P. Protesilaus*, Dru., I, tab. 22, fig. 3, 4." *Celadon* is more frequently represented in N. Am. collection as *Sinon* than is the true *Sinon* itself, in fact the latter is very rare and the few examples I have seen in cabinets have no certain localities cited. Boisduval, in the Sp. Gen., gives Jamaica, Florida and Cuba, as its habitat, and I have little doubt but that it really does occur in the southernmost part of peninsular Florida, the Lep. Fauna of which is decidedly W. Indian.

7. CRESPHONTES, CRAM., Pap. Ex., II., t. 165, 166, (1779); Men., Cat. Mus. Petr. Lep., II, p. 111, (1857); Feld. Verh. Zool. Bot. Ges., XIV, p. 310, n. 294, p. 357, n. 168, (1864).
Heraclides Oxilus, Hüb., Verz. Bek. Schmet., p. 83, (1816).
Papilio Thoas, var., Bdl.-Lec., Lep. Am. Sept. p. 31, t. 12, 13, (1833); Morris, Syn., p. 7, (1862).
P. Thoas, var. *b*, *Cresphontes*, Kirby, Cat. p. 541, (1871).
 Larva on orange in Florida, on ash in the more northern states.
 Rare in the north; common south of Virginia.

	W. Canada. U. S. east of the Rocky Mountains, except the New England States. Texas. Mexico. Central America. W. Indies.
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8. PILUMNUS, BDL., Sp. Gen., I, p. 340, (1836); Men., Cat. Mus. Petr. Lep., II, p. 110, t. 7, (1857); Kirby, Cat., p. 564, (1871); Streck, Lep., Rhop., Het., p. 13, t. II, 3, 4, ♂, (1873).

	New Mexico. Mexico. Central America.
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9. DAUNUS, BDL., Sp. Gen., I, p. 342, (1836); Ridings, Proc. Ent. Soc., Phil., I, p. 278, f. 2, (1862); Kirby, Cat., p. 564, (1871); Streck., Lep., Rhop., Het., p. 45, t. VI, f. 1, 1, ♂ 2, 2, ♀, (1873); W. H. Edwds., Butt. N. Am., II, t. II, Pap., (1874).
 Larva on a species of wild cherry.

	Colorado. New Mexico. Mexico. Central America.
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10. TURNUS, LINN., Mant., p. 536, (1771); Fabr., Syst. Ent., p. 452, (1775); Sp. Ins., II, p. 16, (1781); Esp., Aus. Schmett., t. 48, f. 1, (1785-1798); Godt., Enc. Meth., IX, p. 55, (1819); Say, Am. Ent., III, t. 40, (1828); Bdl.-Lec., Lep. Am. Sept., p. 19, t. 6, 7, (1833); Bdl., Sp. Gen., I, p. 338, (1836); Lucas, Lep. Exot., p. 35, t. 18, (1835); Harris, Ins., Flint's Ed., p. 268, f. 97, (1862); Morris, Syn., p. 2, (1862).

	British Columbia, Canada, United States from the Atlantic to the Rocky Mountains. Guanajuata, Mexico.
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Jasoniades Turnus, Hüb., Verz. Bek. Schmett., p. 83, (1816).

Pap. Alcidas, Cram., Pap. Ex., I, t. 38, A, B, (1776).

Pap. Antiochus, Linn., Mus. Lud. Utr., p. 207, (1764); Syst. Nat., I, 2, p. 751, (1767); Catesby, Nat. Hist. Carolina, II, t. 83, (1771); Bdl., Sp. Gen., I, p. 340, (1836).

Catesby's figure represents either a monstrosity or is a palpable exaggeration; the primaries are acutely falcate and many other points show the most liberal exercise of artistic license.

ab. ♀ *GLAUCUS*, LINN., Mus. Lud. Utr., p. 190, (1764); Syst. Nat. I, 2, p. 746, (1767); Clerck, Icones, t. 24, (1764); Fabr., Syst. Ent., p. 445, (1775); Cram., Pap. Ex., II, t. 139, (1779); Godt., Enc. Meth., IX, p. 60, (1819); Bdl.-Lee., Lep. Am. Sept., p. 22, t. 8, 9, (1833); Bdl., Sp. Gen., I, p. 335, (1836); Morris, Syn., p. 2, (1862); Kirby, Cat. p. 565, (1871).

Euphacides Glaucus, Hüb., Verz. Bek. Schmett. p. 83, (1816).

This common species is polymorphic, having a yellow ♀, like the ♂, and another (ab. *Glaucus*) entirely black and between these every intermediate grade; some are black above and yellow beneath; others have the wings of one side yellow ♀ and those of the other black ♀, and the body also half yellow and half black.

Larva on plum, apple, cherry, wild cherry, tulip tree.

11. *RUTULUS*, BDL., Ann. Soc. Ent., Fr., p. 279, (1852); Luc., California, Rev. Zool., p. 138, (1852); Morris, Syn., p. 3, Oregon and (1862); Kirby, Cat., p. 565, (1871); Hy. Edwds., adjacent ter- Proc. Cal. Acad. Sc., (1873). ritory.

12. *EURYMEDON*, BDL., Ann. Soc. Ent., Fr., p. 280, (1852); California, Luc., Rev. Zool., p. 140, (1852); Morris, Syn., p. 4, Oregon, (1862); Kirby, Cat., p. 565, (1871); Streck., Lep., Vancouver's Rhop., Het., p. 25, t. IV, (1873); Hy. Edwds., Island. Proc. Cal. Acad. Sc., (1873); W. H. Edwds., Butt. N. Am., II, t. I, Pap., (1874).

Larva on *Frangula Californica*.

var. a. *ALBANUS*, FELDER, Reise, Nov. Lep., I, p. 93, n. 71, (1865).

13. *MACHAON*, LINN., Syst. Nat., X, p. 462, (1758); Faun. British Succ., p. 267, (1761); Syst. Nat., I, 2, p. 750, (1767); Columbia, Seba, Thes., IV, p. 90, t. XXXII, (1765); Esp., Alaska, Schmett., I, 1, t. 1, (1777); Hüb., Eur. Schmett., I, f. 390, 391, (1798-1803); Wilhelm, Unt. Nat., Europe, Asia II, p. 21, t. III, (1797); Godt., Enc. Meth., IX, p. 57, (1819); Duncan, Nat. Lib., Ent., III, p. 94, t. 4, (1835); Bdl., Sp. Gen., I, p. 328, (1836); Morris, Syn., p. 12, (1862); Staudinger, Cat., p. 1, n. 3, (1871); Kirby, Cat., p. 565, (1871). (1816).

Jasoniades Machaon, Hüb., Verz. Bek. Schmett., p. 83, *Pap. Regine*, Retzius, Gen. et. Sp. Ins., p. 30, (1783).

P. Alaska, Scudder, Ent. Notes, II, Proc. Bost. Soc. Nat. Hist., (1869); Kirby, Cat., p. 566, (1871).

The N. Am. examples are a little darker in the yellow of ground colour, resembling in this the form occurring in Sicily, Turkey, etc.* Its larva has not yet been found in this country, but of course it feeds on the *Umbellifere*.

14. *ZOLICAON*, BDL., Ann. Soc. Ent. Fr., p. 281, (1852); California, Morris, Syn., p. 4, (1862); Kirby, Cat., p. 566, Utah, (1871); Streck., Lep., Rhop., Het., p. 46, t. VI, f. 3, Colorado, 3, (1873); Hy. Edwds., Proc. Cal. Acad. Sc., (1873); Oregon, W. H. Edwds., Butt. N. Am., II, t. VI, Pap., Vancouver's Island, (1875).

Zelicaon, Luc., Rev. Zool., p. 136, (1852).

Machaon var. *Californica*, Men., Cat. Mus. Petrop., Lep. I, p. 69, (1855).

Larva on umbelliferous plants, carrot, etc.

- †15. *INDRA*, REAK., Proc. Ent. Soc., Phila., VI, p. 123, (1866); Colorado, Kirby, Cat., p. 567, (1871); Streck., Lep., Rhop., Het., p. 9, t. II, f. 1 ♂, (1873); Proc. Acad. Nat. Sc., Phil., p. 150, (1876); Putnam, Proc. Davenport Acad. Sc., I, p. 182, t. XXXV, f. 5 ♀ (1876).

16. *PERGAMUS*, HY. EDWDS., Proc. California Acad. Sc., California, (Dec., 1874).

According to its author close to *Indra*, but has tails as long as *Asterius*. Described from one ♂ taken in Santa Barbara, California, May, 1873.

17. *ASTERIUS*, CRAM., Pap. Exot., IV, t. 385, (1782); Esp., United Aus., Schmett., t. 11, f. 1, 2, t. 40, f. 6, (1785-1798); States and Territories from Atlantic to Pacific, *Euphœades* A., Hüb., Verz. Bek. Schmett., p. 83, (1816).

P. Asterias, Fabr., Mant. Ins., II, p. 2, (1787); Syst. Ent., III, p. 6, (1793); Godt. Enc. Meth., IX, p. 58, (1819); Bdl.-Lec., Lep. Am. Sept., t. 4, (1833); Bdl., Sp. Gen., I, p. 332, (1836); Lucas, Lep. Exot., p. 38, t. 20, (1835); Morris, Syn., p. 5, (1862); Harris, Ins. Inj. Veg., Flint's Ed., p. 265, t. IV, (1862).

Ajax, Clerck, (nec Linn.), Icones, t. 33, (1764).

Troilus, Drury, (nec Linn.), Ill. Exot. Ent., I, t. 11, f. 2, 3, 5, (1773); Fabr., Ent. Syst., III, p. 4, (1793); Abb.-Smith, Ins. Ga., I, t. 1, (1797); Cram., Pap. Exot., III, t. 207, (1782).

Polyxenes, Fabr., Syst. Ent., p. 444, (1775); Kirby, Cat., p. 566, (1871).

Larva on parsnip, carrot, parsley, cicuta, and the like.

- *var. a. *BREVICAUDA*, SAUNDERS, Packard's Guide, Newfoundland, p. 245, (1869); Kirby, Cat. p. 567, (1871); W. H. Edwds., Butt. N. Am., II, t. VIII, Pap., f. 3, 4, 5, (1875).

The macular bands of upper surface of wings fulvous instead of yellow; tails very short.

* *P. Machaon* var. *Sphyrus*, Hub., Sam. Ex. Schmett., f. 775, 776, (1818-1824).

- †var. b. *ANTICOSTIENSIS*, STRECK., Lep., Rhop., Het., I, South Labrador, p. 10, t. II, p. 68, t. VIII, (Larva), (1873); W. H. Edwds., Butt. N. Am., t. VIII, Pap., f. 1, 2, (1875). Anticosti, ? Canada.

The macular bands on wings of ♀ are as broad and broader than in ♂; tails short. Larva on *Archangelica purpurea*.

- *ab. c. *CALVERLEYI*, GROTE, Proc. Ent. Soc., Phila., II, p. 441, t. 10, (1864); Kirby, Cat. p. 566, (1871).

Basal or inner half of wings black; outer half orange coloured, devoid of ornamentation; nearly alike on upper and under surface. But two examples so far known, one (♂) captured on Long Island, N. Y., the other (♀) taken on St. John's River, Florida.

- var. d. *ASTERIOIDES*, REAK., Proc. Acad. Nat. Sc., Mexico, Phila., p. 331, (1866); Kirby, Cat. p. 567, (1871); Central Streck, Lep., Rhop., Het., p. 47, t. VI., ♀, (1873). America.

Macular bands of upper surface alike in both sexes; narrower than in common form of ♂, rarely any indications of yellow within discoidal cells.

- var. e. *UTAHENSIS*, NOB.—♂ Primaries more falcate, and all Utah.

wings somewhat narrower than in the common form. Pale yellow stripes on each side of head and prothorax; tegulae also pale yellow; usual lateral rows of yellow dots on abdomen; anal valves pale yellow; macular bands and submarginal lunules on wings pale yellow on both surfaces, devoid of the orange colour beneath so conspicuous in the eastern examples; anal eye orange pupilled with black, said pupil extending in a line to and connecting with the black of abdominal margin. ♀ with the macular bands reduced to a series of more or less obsolete spots.

- *17 a. *BAIRDII*, W. H. EDWDS., Proc. Ent. Soc., Phila., VI, Arizona, p. 200, (1866); Kirby, Cat., p. 567, (1871).

I saw the type of this some years since, and, if my recollection serves me right, it is very near or perhaps the same as var. *Asterioides*, above cited.

18. *TROILUS*, LINN., Mus. Lud. Ulric, p. 187, (1764), Syst. Nat., I, 2, p. 746, (1767); Cram., Pap. Exot., III, t. 207, (1782); Godt., Enc. Meth., IX, p. 60, (1819); Bdl.-Lec., Lep. Am. Sept., p. 26, t. 10, (1833); Bdl., Sp. Gen., I, p. 334, (1836); Lucas, Lep. Exot., t. 19, ♀ (1835); Morris, Syn., p. 5, (1862); (*Euphœades T.*), Hüb., Verz. Bek. Schmett., p. 83, (1816), Sam. Ex. Schmett., (1816-1824). United States from the Atlantic to Texas; ? California.

P. Ilioneus, Abb.—Smith, Ins. Georgia, I, t. 2, (1797); Feld., Verh. Zool. Bot. Ges., XIV, p. 315, n. 362, p. 364, n. 210, (1864).

Larva on sassafras (*Laurus Sassafras*).

- ab. a.—with the submarginal lunules of secondaries prolonged inwardly towards base, forming dashes or rays. One example in coll. Peale.

- ‡ab. b.—with, on under surface of hind wings, a narrow yellow band which crosses the wing nearly parallel with abdominal margin, running from near anal angle to costa a short distance from base, the same as is always found in *Palamedes*. One example in coll. Strecker.

19. PALAMEDES, DRU., Ill. Ex. Ent., I, t. 19, (1773); Cram., Pap. Ex., I, t. 93, (1779); Kirby, Cat., p. 543, (1871). Southern United States from Virginia southward, and south-west to Louisiana.
- Chalcas*, Fabr., Syst. Ent., p. 453, (1775); Herbst, Nat. Schmett., III, t. 42, (1788); Morris, Syn., p. 7, (1862); (*Euphwades C.*), Hüb., Verz., p. 83, (1816).
- Calchas*, Godt., Enc. Meth., IX, p. 59, (1823); Bdl.-Lec., Lep. Am. Sept., p. 17, t. 5, (1833); Bdl., Sp. Gen., I, p. 337, (1836).
- Larva much resembles that of *Troilus*, and feeds on various species of *Laurus*.

GENUS 2. PARNASSIUS, LATR.

20. DELIUS var. SMINTHEUS, DBLBY.-HEW., Gen. Diur. Lep., t. 4, (1847); Reak., Proc. Ent. Soc., Phil., VI, p. 127, (1866); Kirby, Cat., p. 512, (1871); W. H. Edwds., Butt. N. Am., I, t. II-IV, Parn., (1872). Rocky Mts. of Colorado, Montana, etc.
- Sayii*, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 78, (1863); Butt. N. Am., I, t. II, f. 2, Parn., (1872); Kirby, Cat., p. 511, (1871).
- var. a. BEHRII, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 10, (1870); Butt. N. Am., I, t. III, Parn., (1872); Kirby, Cat., p. 514, (1871).
- This form has yellow spots instead of red.
- Larva on *Sedum*.
21. CLODIUS, MEN., Cat. Mus. Petr., I, p. 73, (1855); Bdl., Lep. Cal., p. 29, (1870); W. H. Edwds., Butt. N. Am., t. I, Parn., (1871); Kirby, Cat. p. 513, (1871). California; Oregon.
- Clarius*, Bdl., Ann. Soc. Ent., Fr., p. 283, (1852); W. H. Edwds., Butt. N. Am., t. I, Parn., (1871).
- *22. EVERSMAINI, MEN., Cat. Mus. Petr., I, p. 73, t. 1, f. 1, 2, ♂, (1855); Kirby, Cat., p. 513, (1871); Stgr., Cat., p. 2, (1871); W. H. Edwds., Butt. N. Am., t. IV, Parn., (1872). Alaska; E. Siberia.
- Wosnesenskii*, Men., Cat. Mus. Petr., I, p. 74, t. 1, f. 3 ♀, (1855).

FAMILY II. PIERIDÆ.

GENUS 1. LEPTALIS, DALMAN.

23. MELITE, LINN., (*Pap. M.*), Syst. Nat., I, 2, p. 755, (1767); New Mexico; Mexico.
- Clerck, Icones, t. 44, (1764); Cram., Pap. Ex., II, t. 153, (1779); Fab., Ent. Syst., III, p. 160, (1793); (*Pieris M.*) Godt., Enc. Meth., IX, p. 165, (1819); (*Licinia M.*) Swains., Zool. Ill., I, t. 22, (1820-1821); (*Leptalis M.*) Bdl., Sp. Gen., I, p. 422, (1836); (*Dismorphia M.*) Kirby, Cat., p. 436, (1871).

GENUS 2. NEOPHASIA, BEHR.

24. MENAPIA, FELDER, (*Pieris M.*), Wien. Ent. Mon., III, California, p. 271, (1859); Reise, Nov. Lep., II, p. 181, Utah, t. 25, (1865); Kirby, Cat., p. 450, (1871); (*Neophasia M.*), W. H. Edwds., Butt. N. Am., t. 1, Vancouver's Pieris, ♂, (1871); Streck., Lep., Rhop.-Het., t. II, Island. f. 4, ♀, p. 14; (1873).

Pieris Tau, Seud., Proc. Bost. Soc. Nat. Hist., VIII, p. 183, (1861); Morris, Syn., p. 322, (1862).

Pieris Ninonia, Bdl., Lep. Cal., p. 38, (1869).

Hy. Edwds. says, "Chrysalis is attached to the trunks of pine and fir trees. The caterpillar doubtless feeds on the spruce fir (*Abies Douglassi*), and should be sought in the early part of July."

- *25. TERLOOH, BEHR, Trans. Am. Ent. Soc., II, p. 304, Sierra Madre, Califa. (1869); Kirby, Cat., p. 450, (1871).

GENUS 3. PIERIS, SCHRANCK.

26. NAPI, LINN., (*Papilio N.*), Faun. Suec., p. 271, (1761); California. Syst. Nat., I, 2, p. 760, (1767); Seba, Rer. Nat. Thes., IV, t. 2, (1765); Esper, Schmett., I, 1, t. 3, (1777); Hüb., Em. Schmett., I, f. 406, 407, (1793-1827); (*Pieris N.*) Godt., Enc. Meth., IX, p. 161, (1819); Bdl., Sp. Gen., I, p. 518, (1836); Stgr., Cat., p. 3, (1871); Kirby, Cat., p. 453, (1871); Streck., Lep., Rhop.-Het., t. VIII, p. 61, (1873); (*Pontia N.*) Duncan, Nat. Lib., Ent., III, p. 121, t. 9, (1835); (*Tachyptera N.*) Berge, Schmett., p. 94, t. 30, (1842).

Pieris Venosa, Seud., Proc. Bost. Soc. Nat. Hist., VIII, p. 182, (1861); Morris, Syn., p. 320, (1862); Kirby, Cat., p. 454, (1871); W. H. Edwds., Syn. N. Am. Lep., p. 4, (1872).

Pieris Nasturtii, Bdl., Lep. Cal., p. 38, (1869).

- var. a. PALLIDA, Seud., Proc. Bost. Soc. Nat. Hist., British VIII, p. 183, (1861); Morris, Syn., p. 321, (1862); Columbia, Kirby, Cat., p. 455, (1871); W. H. Edwds., Syn. Oregon, N. Am. Lep., p. 4, (1872); Streck., Lep., Rhop.-California. Het., t. VIII, p. 62, (1873).

Pieris Iberidis, Bdl., Lep. Cal., p. 39, (1869).

- † *Pieris Castoria*, Reak., Proc. Acad. Nat. Sc., Phila., p. 238, (1866); Kirby, Cat., p. 454, (1871); W. H. Edwds., Syn. N. Am. Lep., p. 4, (1872).

Pieris Resedæ, Bdl., Lep. Cal., p. 39, (1869).

Paler form of the preceding. ♂ sometimes with a more or less distinct black spot in middle of superiors towards outer margin, and sometimes entirely destitute of such spot.

- var. b. OLERACEA, HARRIS, (*Pontia O.*), New Eng. Farmer, VIII, p. 402, (1829); Agass., Lake Superior, p. 386, t. 7, (1850); (*Pieris O.*) Bdl., Sp. Gen., I, p. 518, (1836); Scud., Proc. Bost. Soc. Nat. Hist., VIII, p. 178, (1861); Harris, Ins. Inj. Veg., Flint's Ed., p. 270, fig. 99, (1862); Morris, Syn., p. 315, (1862); Kirby, Cat., p. 454, (1871); W. H. Edwds., Syn. N. Am. Lep., p. 4, (1872).

Pieris Cruciferarum, Bdl., Sp. Gen., I, p. 519, (1836).

Pontia Casta, Kirby, Faun. Bor. Am., IV, p. 288, t. 3, (1837).

An almost immaculate form,—a little greyish at base of wings and on costa and apex of primaries being all the decorations.

Larva on cabbage, turnips, etc.

- var. c. FRIGIDA, Scud., Proc. Bost. Soc. Nat. Hist., p. 181, (1861); Morris, Syn., p. 318, (1862); Stgr., Cat., p. 3, (1871); Kirby, Cat., p. 454, (1871); W. H. Edwds., Syn. Lep. N. Am., p. 4, (1872).

Pieris Oleracea var., Bdl., Sp. Gen., I, p. 518, (1836).

Ganoris Oleracea var. *Borealis*, Grote, Bull. Buff. Soc., I, p. 185, (1873).

A form having the veins of under surface of secondaries accompanied with dark scales.

- var. d. HULDA, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 370, (1869); Kirby, Cat., p. 453, (1871).

Veins of under surface so heavily accompanied by blackish-green scales that but little of the pale yellow ground colour of the wing is visible.

27. VIRGINIENSIS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 13, (1870); Butt. N. Am., t. II, *Pieris*, (1871); Kirby, Cat., p. 454, (1871).

28. RAPE, LINN., (*Papilio R.*), Syst. Nat., Ed. X, I, p. 468, (1758); Faun. Suec., p. 270, (1761); Syst. Nat., Ed. XII, p. 759, (1767); Esper, Schmett., I, t. 3, (1777); Hüb., Eur. Schmett., I, 404–405, (1798); Ochs., 1, 2, 146, (1808); (*Pieris R.*) Godt., Enc. Meth., IX, p. 161, (1819); Bdl., Sp. Gen., I, p. 520, (1836); (*Pontia R.*) Duncan, Nat. Lib., III, p. 117, t. 7, (1835); (*Tachyptera R.*) Berge, Schmett., p. 94, t. 30, (1842); (*Pieris R.*) Stgr., Cat., p. 3, (1871); Kirby, Cat., p. 454, (1871); Streck., Lep., Rhop.-Het., p. 63, t. VIII, (1873).

Pieris Marginalis, Scud., Proc. Bost. Soc. Nat. Hist., VIII, p. 183, (1861); Morris, Syn., p. 321, (1862); Kirby, Cat., p. 454, (1871); W. H. Edwds., Syn. N. Am. Lep., p. 5, (1872); Streck., Lep., Rhop.-Het., p. 63, t. VIII, (1873).

†*Pieris Yrca*, Reak., Proc. Acad. Nat. Sc., Phila., p. 238, (1866); Kirby, Cat., p. 455, (1871); W. H. Edwds., Syn. Lep. N. Am., p. 4, (1872); Streck., Lep., Rhop.-Het., p. 63, t. VIII, (1873).

Canada, New England, Middle and Western States to Colorado.

East and South Labrador, Anticosti Island.

Kodiak.

Canada, New England, Middle States Virginia.

Europe, Siberia, British Columbia, Oregon, California, Canada, New England, Middle and some of the Western United States.

- Larva the too well-known cabbage-worm; is also found on turnips, mignonnette, and some other plants.
- var. a. NOVAGLLE, SCUD., Can. Ent., IV, p. 79, (1872).
♂ entirely lemon yellow on both surfaces.
29. MONUSTE, LINN., (*Pap. M.*), Mus. Lud. Ulr., p. 237, (1764); Syst. Nat., I, 2, p. 760, (1767); Fabr., Syst. Ent., p. 470, (1775); (*Pieris M.*) Godt., Enc. Meth., IX, p. 141, (1819); Bdl., Sp. Gen., I, p. 495, (1836); Kirby, Cat., p. 458, (1871).
Pap. Monusta, Cram., Pap. Ex., II, t. 141, (1779); (*Pieris M.*) Morris, Syn., p. 16, (1862).
Mylothris Hippomonuste, Hüb., Verz. Bek. Schmett., p. 91, (1816).
Pieris Cleomes, Bdl.-Lec., Lep. Am. Sept., I, p. 43, t. 16, (1833).
Pieris Orseis, Godt., Enc. Meth., IX, p. 141, (1819).
Pap. Albusta, Sepp, Surin. Vlind., III, t. 141, (1855).
- ab. a. PHILETA, FABR., (*Pap. P.*), Syst. Ent., p. 471, (1775); Kirby, Cat., p. 458, (1871).
Pieris Philete, Bdl., Sp. Gen., I, p. 550, (1836).
Pieris Suasa, Bdl., l. c., p. 549, (1836).
Phileta is a smoky or melanotic ♀ form.
Larva, according to Bdl., on *Cleome Pentaphylla*.
30. PROTODICE, BDL.-LEC., Lep. Amer. Sept., p. 45, t. 17, (1833); Sp. Gen., I, p. 543, (1836); Scud., Proc. Bost. Soc. Nat. Hist., VII, p. 180, (1861); Morris, Syn., p. 17, (1862); Kirby, Cat., p. 451, (1871); W. H. Edwds., Syn. N. Am. Butt., p. 4, (1872); Saunders, Can. Ent., V, p. 42, (1873).
- var. a. VERNALIS, W. H. EDWDS., Proc. Ent. Soc., Phila., II, p. 501, (1864); Butt. N. Am., t. II, *Pieris*, (1871); Kirby, Cat., p. 463, (1871).
This is the first or spring generation of *Protodice*.
Larva on *Cruciferae*.
31. OCCIDENTALIS, REAK., Proc. Ent. Soc., Phila., VI, p. 133, (1866); Kirby, Cat., p. 462, (1871); W. H. Edwds., Syn. Butt. N. Am., p. 5, (1872).
Closely allied to the preceding.
32. SISYMBRII, BDL., Ann. Soc. Ent., Fr., p. 284, (1852); Morris, Syn., p. 17, (1862); Kirby, Cat., p. 451, (1871); W. H. Edwds., Syn. Butt. N. Am., p. 5, (1872).
33. CHLORIDICE, HUB., (*Papilio C.*), Eur. Schmett., I, f. 712-713, (1803-1818); (*Pieris C.*) Ochs., Schmett. Eur., IV, p. 154, (1816); (*Pieris C.*) Dup., Lep. Fr. Suppl., I, t. 4, (1832); Bdl., Sp. Gen., I, p. 543, (1836); Stgr., Cat., p. 3, (1871); Kirby, Cat., p. 451, (1871); Streck., Lep., Rhop.-Hét., p. 70, (1873).

Canada, New
England and
Middle States.

Southern
U. States,
W. Indies,
Cent. Am.,
Cayenne,
Brazil, Ven-
ezuela.

Canada,
United
States and
Territories,
from At-
lantic to the
Pacific.

Colorado,
Nevada.

California
and adjacent
territory.

Nevada,
Utah, S. Rus-
sia, Sarepta,
Turcomania,
Siberia,
Persia.

Papilio Daphidice var. *Russiae*, Esp., Schmett., I, 2, t. 90, (1784).

Pieris Beckerii, W. H. Edwds., Butt. N. Am., t. 1, *Pieris*, (1871); Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876)

34. CALYCE, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 189, Nevada, (1870); Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876) California.

GENUS 4. ANTHOCHARIS, BDL.

35. AUSONIA, HUB., (*Pap. A.*), Eur. Schmett., I, 582-583, Gr. Slave L. (1803); Ochs., I, 2, p. 164, (1808); Godt., II, 6, 3, Brit. Col., S. 4, (1822); Bdl., Ann. Soc. Ent. Fr., p. 68, (1845); Eur., Moroc- Stgr., Cat., p. 4, (1871); (*Euchloe A.*) Kirby, Cat., co, Syria, p. 506, (1871). Armenia.

var. a. AUSONOIDES, BDL., Ann. Soc. Ent., Fr., 2me Ser. California X, 286, (1852); Lucas, Rev. Zool., p. 340, (1852); and adjacent W. H. Edwds., Proc. Ent. Soc., Phila., II, p. 81, territory. (1863); Syn. N. Am. Butt., p. 5, (1871); (*Euchloe A.*) Kirby, Cat., p. 506, (1871); (*Anth. A.*) W. H. Edwds., Butt. N. Am., II, t. I, Anth., (1874); Hy. Edwds., Proc. Cal. Acad. Sc., V, (1874); Mead, Wheeler's Rep., V, p. 747, (1875).
Larva on *Cruciferae*.

36. CREUSA, DBLDY.-HEW., Gen. Diur. Lep., p. 56, t. 7, Nevada, (1847); (*Euchloe C.*) Kirby, Cat., p. 506, (1871); Utah. (*Anth. C.*) W. H. Edwds., Syn. N. Am. Butt., p. 5, (1871); Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).
A. Hyantis, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 205, (1871).

37. LANCEOLATA, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, 284, California. (1852); Luc., Rev. Zool., p. 338, (1852); Morris, Syn., p. 21, (1862); Seud., Proc. Bast. Soc. Nat. Hist., Vol. XII, p. 406, (1869); (*Midea L.*) Kirby, Cat., p. 509, (1871); (*Anth. L.*) Streck., Lep., Rhop.-Het., p. 49, t. VI, (1873); Hy. Edwds., Proc. Cal. Acad. Sc., VII, (1876).

A. Edwardsii, Behr, Trans. Am. Ent. Soc., II, p. 304, (1869); (*Euchloe E.*) Kirby, Cat., p. 508, (1871).

38. GENUTIA, FABR., (*Pap. G.*), Ent. Syst., III, 1, p. 193, U. S. east of (1793); Don., Ins. Ind., t. 27, (1800); (*Pieris G.*) Texas, (? ex- Godt., Enc. Meth., IX, p. 168, n. 165, (1819); cept New (*Anth. G.*) Bdl., Sp. Gen., I, p. 565, (1836); Morris, England States). Syn., p. 20, (1862); (*Midea G.*) Kirby, Cat., p. 508, (1871).

Mancipium vorax Midea, Hüb., Sam. Ex. Schmett., (1806-1816).

Pieris L'herminieri, Godt., Enc. Meth., IX, n. 164, (1819)
Donovan's figure is incorrectly represented with long palpi like *Libythea*.

39. SARA, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, 285, (1852); California, Lucas, Rev. Zool., p. 21, (1852); Morris, Syn., p. 21, Oregon. (1862); (*Euchloe S.*) Kirby, Cat., p. 508, (1871); (*Anth. S.*) W. H. Edwds., Butt. N. Am., t. II, Anth., (1871).

var. a. REAKIRTH, W. H. EDWDS., Trans. Am. Ent.

- Soc., II, p. 369, (1869); Butt. N. Am., t. I, Anth., (1870); (*Euchloe R.*) Kirby, Cat., p. 508, (1871); Hy. Edwds., Cal. Acad. Nat. Sc., VII, (1876).
 Smaller than *Sara*, and ♀ is always white, never yellow, as in some instances in the former. Probably the first generation of *Sara*.
40. CETHURA, FELD., Reise Nov. Lep., II, p. 182, t. 25. Mt. Diablo, San Diego, California.
 (1865); (*Euchloe C.*) Kirby, Cat., p. 508, (1871).
A. Cooperi, Behr, Trans. Am. Ent. Soc., II, p. 304, (1869);
 W. H. Edwds., Butt. N. Am., t. I, Anth., (1870).
A. Angelina, Bdl., Lep. Cal., p. 40, (1869).
41. JULIA, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 61, Colorado, Utah.
 (1872); Streck, Lep., Rhop.-Het., p. 50, t. VI, ♂, ♀,
 (1873); Mead, Wheeler's Rep., V, p. 748, (1875).
42. OLYMPIA, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 266, Va., Kan., Tex. and
 (1871); Streck, Lep., Rhop.-Het., p. 64, t. VIII, ♂, doubtless
 (1874); W. H. Edwds., Butt. N. Am., II, t. I, Anth., other parts of
 (1874); Hy. Edwds., Cal. Acad. Nat. Sc., VII, (1876) the U. S.
 Belongs to the group separated by Rambur into the genus *Zegris*.

GENUS 5. NATHALIS, BDL.

44. IOLE, BDL., Sp. Gen., I, p. 589, (1836); Morris. Syn., p. Colorado,
 22, (1862); Reak., Proc. Ent. Soc., Phil., VI, p. 134. California,
 (1866); Kirby, Cat., p. 504, (1871); Hy. Edwds., Texas, Mex-
 Proc. Cal. Acad. Sc., VII, (1876). ico, Cuba,
Felicia, Poey, Mem. Cuba, I, p. 443, t. 18, (1851). Cent. Am.
Irene, Fitch, 3d Rep. N. Y. State Agr. Soc., Suppl., p.
 485, (1856).
 ‡*Luteolus*, Reak., Proc. Ent. Soc., Phil., II, p. 350,
 (1863); Kirby, Cat., p. 504, (1871).
 The original type of *Luteolus* is in my possession; it is merely
 a little darker yellow than is commonly the case.

GENUS 6. CALLIDRYAS, BDL.

45. ARGANTE, FABR., (*Pap. A.*), Syst. Ent., p. 470, (1775); Ent. Florida,
 Syst., III, I, p. 189, (1793); (*Mancipium fugax* A.) Texas, Mex-
 Hüb., Sam. Ex. Schmett., (1806-1816); (*Col. A.*) ico, W. In-
 Godt., Enc. Meth., IX, p. 92, (1819); Swains., Zool. dies, Cent.
 Ill., I, t. 52, (1820-1821); (*Callidryas* A.) Bdl., Sp. Am., Boli-
 Gen., I, p. 622, (1836); Lucas, Lep. Exot., p. 81, t. 40, via, Brazil,
 (1835); (*Catopsilia* A.) Kirby, Cat., p. 484, (1871); etc.
 (*Call. A.*) Butl., Lep. Exot., p. 119, t. 44, (1872).
 ♂ *Pap. Hirsilia*, Cram., Pap. Ex., II, t. 173, (1779);
 Herbst, Nat. Schmett., V, p. 192, t. CX, (♂), p. 197,
 t. CXI, (♀), (1792); (*Call. II.*) Butl., Lep. Exot.,
 p. 106, t. 39, (1872).
Pap. Cypris, Cram., Pap. Ex., II, t. 99, (1779); (*Phorbis*
C.) Hüb., Sam. Ex. Schmett., (1806-1816).
Pap. Pallidiflavus, Goeze, Ent. Beyt., III, 1, p. 185,
 n. 97, (1779).
Pap. Larra, Fabr., Ent. Syst. Suppl., p. 428, (1798);
 (*Col. L.*) Godt., Enc. Meth., IX, p. 94, (1819).
Pap. Volcanica, Perry, Arcana, (1811).
Col. Cnidia, Godt., Enc. Meth., IX, p. 93, (1819).
Pap. Xanthe, Sepp, Surin. Vlind., II, t. 75, (1848).

46. *EUBULE*, LINN., (*Pap. E.*), Syst. Nat., I, 2, p. 764, (1767); Cram., Pap. Ex., II, t. 120, (1779); Abb.-Smith, Lep. Ga., I, t. 5, (1797); (*Callidryas E.*) Bdl.-Lec., Lep. Am. Sept., p. 74, t. 24, (1833); Bdl., Sp. Gen., I, p. 613, t. 6, ♀, (1836); Duncan, Nat. Lib., Ent., V, p. 122, t. VIII, (1837); Morris, Syn., p. 25, (1862); (*Catopsilia E.*) Kirby, Cat., p. 482, (1871). *Pap. Marcellina*, Cram., Pap. Ex., II, t. 163, (1779); (*Col. M. et Eubule*) Godt., Enc. Meth., IX, p. 92, (1819); Don., Nat. Rep., I, t. 6, (1823); (*Callidryas M.*) Bdl., Sp. Gen., I, p. 615, (1836); Bates, Jnl. Ent., I, p. 238, (1861); Morris, Syn., p. 26, (1862). *Pap. Drya*, Fabr., Syst. Ent., p. 478, (1775). ? var. *Pap. Sennæ*, Linn., Syst. Nat., I, 2, p. 764, (1767). Larva on *Cassia*.
47. *CYPRIS*, FABR., (*Pap. C.*), Ent. Syst., III, 1, p. 212, (1793); Don., Nat. Rep., II, t. 40, (1824); (*Colias C.*) Godt., Enc. Meth., IX, p. 91, (1819); (*Catopsilia C.*) Kirby, Cat., p. 484, (1871). *Callidryas Cypris*, Bdl., Sp. Gen., I, p. 623, (1836). *Colias Neocypris*, Hüb., Sam. Ex. Schmett., (1816-1836). ♀ *Callidryas Bracteolata*, Butler, Proc. Zool. Soc., p. 458, t. 26, (1865). Hind wings of this species prolonged at the anal angle into a tail.

U. S. excepting New England and the north-western States, commonest south. Mexico, W. Indies, Cent. and S. Am.

S. Texas, ? N. Mexico, Mexico, Cent. Am., Brazil, etc.

GENUS 7. KRICOGONIA, REAK.

48. *LAYSIDE*, GODT., (*Colias L.*), Enc. Meth., IX, p. 98, (1819); *figured* in Hüb. Zutr. Exot. Schmett., n. 843, 844, (1818); Men., Nouv. Mem. Soc. Nat. Mosc., III, p. 119, (1834); (*Rhodocera L.*) Bdl., Sp. Gen., I, p. 603, (1836); Morris, Syn., p. 24, (1862); (*Gonepteryx L.*) Dbldy.-Hew., Gen., I, p. 71, (1847); (*Krie. L.*) Reak., Proc. Ent. Soc., Phil., II, p. 356, (1863); Kirby, Cat., p. 387, (1871).

S. Florida, Texas, West Indies, Mexico.

GENUS 8. GONEPTERYX, LEACH.

49. *MERULA*, FABR., (*Pap. M.*), Syst. Ent., p. 479, (1775); Ent. S., III, 1, p. 212, (1793); Don., Ins. Ind., t. 27, (1800); (*Col. M.*) Godt., Enc. Meth., IX, p. 89, (1819); (*Rhodocera M.*) Bdl.-Lec., Lep. Am. Sept., p. 71, t. 23, (1833); Bdl., Sp. Gen., I, p. 600, (1836); Morris, Syn., p. 23, (1862); (*Gon. M.*) Kirby, Cat., p. 488, (1871). *Pap. Ecclipsis*, Cram., Pap. Ex., II, t. 129, (1779).

Florida, W. Indies, Mexico.

50. CLORINDE, GODT., (*Colias C.*), Enc. Meth., IX, Sup., p. 813, (1823); (*Call. C.*) Lucas, Pap. Ex., p. 83, t. 42, (1835); (*Rhodocera C.*) Bdl., Sp. Gen., I, p. 599, (1836); Morris, Syn., p. 350, (1862); (*Gonepteryx C.*) Dbldy.—Hew., Gen., I, p. 71, (1847); Kirby, Cat., p. 487, (1871).
Anteos Mærula, Hüb., Sam. Ex. Schmiett., (1806–1824).
Amynthia et Cynthia Swainsonia, Swains., Zool. Ill., 2, Ser., t. 65, (1832).
Colias Godarti, Perty, Del. Animal, p. 152, t. 29, (1834).

S. Texas,
 N. Mexico,
 Mexico, W.
 Indies, Cent.
 Am., N.
 Granada,
 Bolivia, etc.

GENUS 9. MEGANOSTOMA, REAK.

51. EURYDICE, BDL., (*Col. E.*), Ann. Soc. Ent., Fr., p. 32, (1852); Lep. Cal., p. 40, (1869); W. H. Edwds., Butt. N. Am., I, t. V, Col., (1869); (*Meg. E.*) Kirby, Cat., p. 490, (1871).
Col. Wosnesenskii, Men., Cat. Mus. Petr. Lep., I, p. 77, t. I, (1855); Morris, Syn., p. 32, (1862).
 ♀ *Rhodocera Lorquini*, Bdl., Ann. Soc. Ent., Fr., p. 52, (1855).
 † *Meganostoma Helena*, Reak., Proc. Ent. Soc., Phil., II, p. 358, (1863); Kirby, Cat., p. 489, (1871).
 Larval food-plant, *Amorpha Californica*, Torr.
52. CÆSONIA, STOLL., (*Pap C.*), Sup. Cram., t. 41, (1787–1791); (*Zerene C.*) Hüb., Sam. Ex. Schmiett., (1806–1824); (*Colias C.*) Godt., Enc. Meth., IX, p. 98, (1819); Bdl.—Lee., Lep. Am. Sept., p. 67, t. 22, (1833); Lucas, Pap. Ex., p. 79, t. 39, (1835); Bdl., Sp. Gen., I, p. 635, (1836); Dbldy.—Hew., Gen., p. 74, (1847); Morris, Syn., p. 27, (1862); (*Meg. C.*) Reak., Proc. Ent. Soc., Phila., II, p. 358, (1863); Kirby, Cat., p. 489, (1871); Hy. Edwds., Proc. Cal. Acad. Sc., (1874).
Pap. Caroliniana, Petiv. Gazoph., p. 2, t. 7, (1767).
 Larva on various species of clover (*Trifolium*).

Southern
 and Western
 U. S. from
 Atlantic to
 Pacific;
 Mexico;
 Central
 America.

GENUS 10. COLIAS, FABR.

53. PALÆNO, LINN., Faun. Suec., p. 272, (1761); Syst. Nat., I, 2, p. 764, (1767); Fabr., Syst. Ent., p. 476, (1775); Ent. Syst., III, p. 207, (1793); Ochs., Schmiett., I, 2, 184, (1808); (*Colias P.*) Godt., Enc. Meth., IX, p. 101, (1819); Bdl., Sp. Gen., I, p. 645, (1836); Stgr., Cat., p. 5, (1871); Kirby, Cat., p. 493, (1871).
Pap. Europomene, Esp., Schmiett., I, t. 42, (1778); Hüb., Eur. Schmiett., 434, 435, (1793–1827).
Pap. Philomene, Hüb., l. c., 602, 603, 740, 741; (*Col. P.*) Dup., Lep., Suppl., I, t. 47, (1832).

Brit. Co-
 lumbia,
 Arctic re-
 gions of
 America and
 Europe.

Col. Palæno var. *Lapponica*, *Stgr.*, Cat., p. 5, (1871).
Col. Werdandi, *H.-S.*, Schmett. Eur., f. 403, 404, ♀, (1848).

Col. Helena, *W. H. Edwds.*, Proc. Ent. Soc., Phila., II, p. 80, (1863); Butt. N. Am., I, t. I, Col., (1868).

Col. Chippewa, *W. H. Edwds.*, l. c., last page Vol. I; Kirby, Cat., p. 495, (1871).

The N. Am. ♂ examples are generally paler than the common European form, assimilating more to the var. *Lapponica*, *Stgr.* *Edwds.*' types (*Helena et Chippewa*) were taken at McKenzie's River, British Columbia, N. L. 61°, about. I received examples from the region south-west of New North Wales, B. C. It is a common species in central and northern Europe and Siberia

54. *PELIDNE*, *BDL.*, Icones, t. 8, (1832); *Sp. Gen.*, I, p. 644, (1836); *Dup.*, Suppl., I, t. 15, (1832); *Bdl.-Lec.*, Lep. Am. Sept., p. 66, t. 21, (1833); *Herr.-Sch.*, Schmett. Eur., t. 7, f. 35, 36, t. 8, f. 43, 44, (1843); *Freyer*, Neue Beit., VI, t. 511, (1831-1858); *Men.*, Cat. Mus. Petr. Lep., I, p. 84, (1855); *Mosch.*, Wien. Monat., IV, p. 349, (1860); *Morris*, Syn., p. 30, (1862); Kirby, Cat., p. 493, (1871); *W. H. Edwds.*, Butt. N. Am., II, t. I, Col., (1874).

Col. Anthyale, *Stgr.*, Cat., p. 5, (1871).

Col. Labradorensis, *Scud.*, Proc. Bost. Soc. Nat. Hist., p. 107, (1862); l. c., XII, p. 406, (1869); Kirby, Cat., p. 493, (1871).

Col. Scudderii, *Reak.*, Proc. Ent. Soc., Phil., IV, p. 217, (1865); Kirby, Cat., p. 496, (1871); *W. H. Edwds.*, Butt. N. Am., I, t. VIII, Col., (1872); *Mead*, Wheeler's Rep., V, p. 749, (1875).

Differs in nothing of any importance from the Labrador examples.

- var. a. *INTERIOR*, *SCUD.*, Proc. Bost. Soc. Nat. Hist. IX, p. 108, (1862); Kirby, Cat., p. 493, (1871).

† *Col. Pelidne* var., *Streck.*, Lep., Rhop.-Het., p. 69, (1873).

Col. Philodice var. *Laurentina*, *Scud.*, Proc. Bost. Soc. Nat. Hist., p. 4, (Oct., 1875).

A form found in S. Labrador and in the Lake Superior region, in which the ♀ is in the majority of instances yellow like the ♂.

- var. b. *CHRISTINA*, *W. H. Edwds.*, Proc. Ent. Soc., Phil., II, p. 79, (1863); Butt. N. Am., I, t. II, Col., (1868).

A form of great size, ♂ ♀ often 2½ inches in expanse; the ♂ is sometimes partially suffused with orange, like *Eurytheme*, as in the examples figured by *Edwds.*, which were taken at Slave River, B. C. In the examples from N. S. Wales, B. C., the males are lemon yellow, like the typical Labrador form; the females are both yellow and white, the latter greatly in excess of the former. Above Lake Athabasca both the orange and yellow ♂, and the yellow and white ♀ forms occur. All four exceed in size those from N. E. Labrador.

55. *ALEXANDRA*, *W. H. Edwds.*, Proc. Ent. Soc., Phil., II, p. 15, t. 11, (1863); Butt. N. Am., I, t. I, Col., (1868); *Reak.*, Proc. Ent. Soc., Phil., VI, p. 135, (1866); Kirby, Cat., p. 494, (1871); *Mead*, Wheeler's Rep., V, p. 749, (1875).

ab. a. ♀ *ALBA*,—a white ♀ form of rare occurrence.

N. E. Labrador,
 Brit. Columbia,
 Colorado

S. Labrador,
 Anticosti,
 Canada,
 Lake Superior.

Brit. Columbia.

Colorado.

var. b. EDWARDSII, BEHR; W. H. Edwds. Butt. N. Nevada. Am., I, t. 6, Col., (1870); Kirby, Cat., p. 494, (1871); Mead, Wheeler's Rep., V, p. 749, (1875).

What little difference there is between this and *Alexandra* is easier seen than described, being mainly in the presence of more dark scales on margin of primaries in ♀.

†*56. EMILIA, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 12, (1870); Kirby, Cat., p. 494, (1871).

†*57. BARBARA, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VII, (1877).

58. PHILODICE, GODT., Enc. Meth., IX, p. 100, (1819); Canada, (*Eurymus P.*) Swains., Zool. Ill., 2, Ser. II, t. 60, United (1831); Bdl.-Lee., Lep. Am. Sept., p. 64, t. 21, States east (1833); Bdl., Sp. Gen., I, p. 647, (1836); Lucas, of Texas, Lep. Exot., p. 78, t. 39, (1835); Harris, Ins. Inj. Kansas, Veg., p. 272, f. 100, 102, (1862); Morris, Syn., p. 29, (1862); Reak., Proc. Ent. Soc., Phil., IV, p. 218, (1865), VI, p. 135, (1866); Saunders, Can. Ent., I, p. 54, (1869); Kirby, Cat., p. 494, (1871); Mead, Wheeler's Rep., V, p. 748, (1875); W. H. Edwds., Butt. N. Am., II, t. II, III, Col., (1876).

Pap. Paleno, Cram., Pap. Exot., I, t. 14, (1775).

Zerene Anthyale, Hüb., Zutr. Ex. Schmett., f. 307, 308, (1823).

Col. Europome, Steph., Ill. Brit. Ent. Haust., I, p. 10, t. 1, (1828); (*Eurymus E.*) Swains., Zool. Ill., 2d, Ser. II, t. 70, (1831); (*Col. E.*) Humph., West. Brit. Butt., p. 17, t. 3, (1848).

Col. Chrysotheme, Nastes et Santes, Fitch, Rep. N. Y. State Agr. Soc., VIII, p. 378, (1854).

ab. a. ♀ ALBA, W. H. EDWDS., Butt. N. Am., II, t. 11, Col., f. 6, t. III, f. 5, 6, (1876).

The common white ♀ form.

Larva on clover (*Trifolium*) and pea (*Astragalus*).

ab. b. ♂ NIG.—First figured by Glover in his unpublished plates from a unique example taken near Palmyra, N. Y. This figure was copied in Edwds.' Butt. N. Am., II, t. III, Col., f. 8, 9, (1876). Another example, now in my possession, was taken near Montreal, Canada; it is wholly smoky black on upper surface save the fringes, which are pink. Under surface dull green, with a large inky patch on inner half of primaries.

‡ab. c. ♂ VIRIDA.—One example taken at same time and place as the preceding. Upper surface dull dark green, with usual black border. Under side much as in preceding.

ab. d. ♂ HYBRIDA ex C. PHILODICE et C. CHRYSOTHEME, figured in W. H. Edwds.' Butt. N. Am., II, t. III, Colias, (1876).

Suffused with pale orange.

var. e. OCCIDENTALIS, SCUD., Proc. Bost. Soc. Nat. Hist., IX, p. 109, (1862); W. H. Edwds., Butt. N. Am., I, t. VII, Col., (1871); Kirby, Cat., p. 493, (1871).
Col. Chrysomelas, Hy. Edwds., Proc. Cal. Acad. Nat. Sc., VII, (1877).

Illinois,
Georgia.

M'Kenzie's
River, Brit-
ish Colum-
bia; Oregon,
California.

- ? var. f. *ERIPHYLE*, W. H. Edwds., Trans. Am. Ent. Soc. V, p. 202, (1876). British Columbia.
- †*59. *ASTRÆA*, W. H. Edwds., Trans. Am. Ent. Soc., IV, p. 61, (1872). Montana.
Described from one ♂ taken near the Yellowstone River Montana, by the Hayden Ex., 1871.
60. *CHRYSOTHEME*, ESP., (*Pap. C.*), Schmiett., I, 2, t. 65, (1777); Hüb., Eur. Schmiett., I, f. 426–428, (1793–1827); Ochs., Schmiett. Eur., I, 2, p. 178, (1808); Eng. and (*Col. C.*) Godt., Enc. Meth., IX, p. 103, (1819); Middle Bdl., Icones, t. 9, (1832); Sp. Gen., I, p. 643, t. 6, (1836); Morris, Syn., p. 28, (1862); Stgr., Cat., p. 6, (1871); Kirby, Cat., p. 493, (1871); Streck., Lep., Rhop.–Het., p. 100, (1874). Rare in Canada, New States; common in Southern and Western States and Territories.
Col. Ariadne, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 12, (1870); Kirby, Cat., p. 494, (1871).
- var. a. *gen. 2. EURYTHEME*, BDL., Ann. Soc. Ent., Fr., p. 286, (1852); Morris, Syn., p. 29, (1862); Reak., Proc. Ent. Soc., Phil., II, p. 136, (1866); W. H. Edwds., Butt. N. Am., I, t. III, Col., (1869); Kirby, Cat., p. 493, (1871); Hy. Edwds., Proc. Cal. Acad. Sc., V, p. 162, (1873); Mead, Wheeler's Rep., V, p. 748, (1875).
Col. Chrysotheme, var. *Bdl.*, Sp. Gen., I, p. 644, (1836).
Col. Amphidusa, *Bdl.*, Ann. Soc. Ent., Fr., p. 286, (1852).
Col. Edusa, var. *Californiana*, Men., Cat. Mus. Petr. Lep., I, p. 80, (1855).
- ab. b. ♀ *ALBA*, W. H. EDWDS., Butt. N. Am., t. III, Col., f. 5, 6, (1869).
- ‡ab. e. ♀ *FLAVA*,—destitute of every trace of orange. Mus. Streck.
- var. d. *KEEWAYDIN*, W. H. EDWDS., Butt. N. Am., I, t. IV, Col., (1869); Kirby, Cat., p. 491, (1871); Mead, Wheeler's Rep., V, p. 748, (1875).
Forma intermedia *Chrysotheme* et *Eurytheme*.
- ab. e. ♀ *ALBA*, W. H. EDWDS., l. c., f. 8, 9.
- ab. f. *HARFORDII*, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VII, (1877). California.
Col. Keewaydin, var., A, ♂, W. H. Edwds., Butt. N. Am., I, t. IV, Col., f. 7, (1869).
Destitute of all orange, lemon yellow like *Philodice*.
Larva on buffalo grass (*T. reflexum*) and other species of *Trifolium*.
61. *MEADII*, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 267, (1871); Butt. N. Am., I, t. VIII, Col., (1872); Mead, Wheeler's Rep., V, p. 750, (1875). Rocky Mts. of Col.; 10–12,000 feet above the sea.
So close to *C. Hecla*, Lefbr., that I almost doubt its being distinct.
62. *HECLA*, LEFBR., Ann. Soc. Ent., Fr., p. 383, t. 9, (1836); Kirby, Man. Eur. Butt., p. 17, (1862); Stgr., Cat., p. 6, (1871); Kirby, Cat., p. 492, (1871). Greenland, Lappland.
Col. Boothii, *Bdl.*, (*nec Curtis*), Gen. Ind. Meth., p. 7, (1840); Herr.–Sch., Schmiett. Eur., I, f. 459, 460, (1843); Walleng., Skand. Dagf., p. 139, (1853).

63. BOOTHII, CURTIS, App. to Narr. Ross' 2d Voy., Nat. Hist., Boothia-
p. 65, t. A, (1835); Herr.-Sch., Schmett. Eur., I, Felix.
f. 39, 40, (1843); Gn., Ann. Soc. Ent. Fr., p. 198,
(1864); Stgr., Stett. Ent. Z., p. 47, (1866); Cat.
Eur. Lep., p. 5, (1871); Kirby, Cat., p. 493, (1871).
ab. a. CHIONE, CURTIS, App. Ross' 2d Voy., Nat. Hist.,
p. 66, t. A, (1835); Stgr., Cat., p. 6, (1871); Kirby,
Cat., p. 493, (1871).
Devoid of the black discal spot on primaries; marginal border
narrow and obscure.
64. NASTES, BDL., Icones, t. 8, (1832); Godt., Dup. Suppl. N. E. Lab-
Lep., I, t. 15, (1832); Bdl., Sp. Gen., I, p. 648, radior.
(1836); Herr.-Sch., Schmett. Eur., I, t. 7, f. 37, 38,
(1843), t. 84, f. 401, 402, (1843); Walleng., Skand.
Dagf., p. 142, (1853); Mosch., Wien. Ent. Monat.,
IV, p. 354, t. 9, (1860); Morris, Syn., p. 30, (1862);
Stgr., Cat., p. 5, (1871); Kirby, Cat., p. 494, (1871);
W. H. Edwds., Butt. N. Am., II, t. I, Col., (1874).
This is the Labrador form of the Lappland *C. Werdandi*, Zett.,
(Ins. Lapp., p. 908, (1828)).
- *var. a. ROSSII, GN., Ann. Soc. Ent. Fr., p. 199, (1864); Boothia-
Stgr., Cat., p. 5, (1871); Kirby, Cat., p. 495, (1871). Felix.
Yellow form.
65. BEHRII, W. H. EDWDS., Proc. Ent. Soc., Phil., VI, p. Mts. of Cal.,
201, (1866); Butt. N. Am., I, t. 2, Col., (1868); 10,000 ft.
Kirby, Cat., p. 495, (1871). above the sea

GENUS 11. TERIAS, SWAINS.

{ *Xanthidia*, Bdl. }
{ *Eurema*, Hüb. }

68. NICIPPE, CRAM., (*Pap. N.*), Pap. Exot., III, t. 210, From Penn-
(1782); Herbst, Nat. Schmett., V, p. 176, t. CVII, sylvania
f. 3, 4, (1792). Enc. Meth. Ins. Plates, t. 15, f. 2, southward
(1797); Fabr., Ent. Syst., III, p. 208, (1793); *fig-* to the Gulf
ured in Hüb., Zutr. Ex. Schmett., n. 819, 820, ♀, of Mexico
(1818); (*Colias N.*) Godt., Enc. Meth., IX, p. 103, and west-
(1819); Say, Am. Ent., II, p. 70, t. 30, (1825); ward to the
Lucas, Pap. Exot., p. 76, t. 38, (1835); (*Xanthidia* Pacific;
N.) Bdl.-Lec., Lep. Am. Sept., p. 55, t. 20, (1833); Mexico, Cen-
(*Terias N.*) Bdl., Sp. Gen., I, p. 653, (1836); Mor- tral Am., W.
ris, Syn., p. 33, (1862); (*Eurema N.*) Kirby, Cat., p. Indies.
441, (1871); Mead, Wheeler's Rep., V, p. 750, (1875);
Hy. Edwds., Proc. Cal. Acad. Sc., VII, (1876).
- ab. a. ♂ ♀ FLAVA.—Citron yellow without any traces of orange.
♂ very rare, ♀ more frequent.
Larva on *Cassia* and *Trifolium*.
69. PROTERPIA, FABR., (*Pap. P.*), Syst. Ent., p. 478, (1775); Texas, Mex-
Sp Ins., II, p. 50, (1781); Mant. Ins., II, p. 24, ico, Cuba,
(1787); Ent. Syst., III, 1, p. 210, (1793); (*Col. P.*) Cent. Am.,
Godt., Enc. Meth., IX, p. 91, (1819); (*Ter. P.*) Bolivia,
Bdl., Sp. Gen., I, p. 654, (1836); Lucas, Lep. Exot., Venezuela.
p. 74, t. 38, (1835); Morris, Syn., p. 35, (1862);
(*Eurema P.*) Kirby, Cat., p. 441, (1871).

70. GUNDLACHIA, POEY, Mem. Nat. Hist., Is. Cuba, I, p. 246, Texas,
t. 24, (1851); (*Eurema G.*) Kirby, Cat., p. 441, (1871). Mexico,
Ter. Proterpia var., Bdl., Sp. Gen., I, p. 655, (1836). Cuba.
71. MEXICANA, BDL., Sp. Gen., I, p. 655, t. 19, ♀, (1836); Texas,
Duncan, Nat. Lib., Ent., V, p. 125, t. 8, ♂, (1837); Louisiana,
(*Eurema M.*) Hüb., Zutr. Exot. Schmett., f. 917, Mexico.
918, (1837); (*Ter. M.*) Morris, Syn., p. 36, (1862);
(*Eurema M.*) Kirby, Cat., p. 441, (1871).
Ter. Boisduvaliana, Feld., Reise Nov., II, p. 200, (1865).
72. WESTWOODII, BDL., Sp. Gen., I, p. 666, (1836); (*Eurema* Texas,
W.) Kirby, Cat., p. 445, (1871). Mexico.
Eurema Dina, Hüb., Zutr. Ex. Schmett., f. 951, 952,
(1837).
73. ELATHEA, CRAM., (*Pap. E.*), Pap. Exot., II, t. 99, (1779); ? Florida,
Fabr., Sp. Ins., II, p. 44, (1781); Ent. Syst., III, Mexico,
1, p. 196, (1793); (*Pieris E.*) Godt., Enc. Meth., Cent. Am.
IX, p. 136, (1819); (*Ter. E.*) Lucas, Lep. Ex., p.
76, t. 39, (1835); Bdl., Sp. Gen., p. 664, (1836);
Bates, Jnl. Ent., I, p. 242, (1861); (*Eurema E.*)
Kirby, Cat., p. 444, (1871).
74. PALMIRA, POEY, Mem. Nat. Hist. Is. Cuba, I, p. 249, t. ? Florida,
24, (1851); (*Eurema P.*) Kirby, Cat., p. 444, (1871). Cuba.
Ter. Lydia, Feld., Wien. Ent. Mon., V, p. 87, (1861);
Reise Nov. Lep., II, p. 206, (1865).
75. DELIA, CRAM., (*Pap. D.*), Pap. Exot., III, t. 273, (1782); Southern
(*Xanthidia D.*) Bdl.-Lee., Lep. Am. Sept., p. 49, United
t. 18, (1833); (*Ter. D.*) Bdl., Sp. Gen., I, p. 663, States.
(1836); Morris, Syn., p. 34, (1862); (*Eurema D.*)
Kirby, Cat., p. 444, (1871).
Eurema Demoditas, Hüb., Verz. Bek. Schmett., p. 96,
(1816).
Pieris Daira, Godt., Enc. Meth., IX, p. 137, (1819).
Larva on "*Trifolium*, *Cassia* and *Glycine*," Bdl.-Lee.
76. LISA, BDL.-LEC., (*Xanthidia L.*), Lep. Am. Sept., p. 53, Canada, U.
t. 19, (1833); (*Ter. L.*) Bdl., Sp. Gen., p. 661, t. 2, S. east of the
(1836); Morris, Syn., p. 34, (1862); (*Eurema L.*) Rocky Mts.,
Kirby, Cat., p. 443, (1871). Texas,
Pieris Smilax, Godt., Enc. Meth., IX, p. 136, (1819). Mexico.
ab. a. ♀ ALBA,—entirely white instead of yellow.
Larva food same as the preceding.
77. JUCUNDA, BDL.-LEC., (*Xanthidia J.*), Lep. Am. Sept., p. Habitat
52, t. 19, (1833); (*Ter. J.*) Bdl., Sp. Gen., I, p. 665, same as
(1836); Morris, Syn., p. 35, (1862); (*Eurema J.*) *T. Delia*.
Kirby, Cat., p. 445, (1871).
Ter. Ebricola, Poey, Mem. Nat. Hist., Is. Cuba, I, t.
24, (1851).
♀ *Ter. Albina*, Poey, l. c.

FAMILY III. LYCÆNIDÆ.

GENUS 1. THECLA, FABR.

- †78. CRYBALUS, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. Colorado,
344, (1873); Mead, Wheeler's Rep., V, p. 777, (1875). Utah.

- Hypaurotis Chrysalus*, Scud., Buff. Bull., III, p. 113, (1876).
- *79. PUTNAMI, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1876). Utah.
80. GRUNUS, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 289, (1852); Lep. Cal., p. 43, (1869); (*Dipsas G.*) Hew., Ill. Diur. Lep., 67, Supp., 16, t. 6; (*Thecla G.*) Morris, Syn., p. 100, (1862); (*Zephyrus G.*) Kirby, Cat., p. 403, (1871); (*Habrodais G.*) Scud., Buff. Bull., III, p. 113, (1876). California.
81. HALESUS, CRAM., (*Pap. H.*), Pap. Ex., II, t. 98, (1779); (*Hesperia H.*) Fabr., Ent. Syst., III, p. 273, (1793); (*Atlides H.*) Hüb., Verz. Bek. Schmett., p. 80, (1816); (*Polyommatus H.*) Godt., Enc. Meth., IX, p. 626, (1823); (*Thecla H.*) Bdl.-Lec., Lep. Am. Sept., p. 83, t. 25, (1833); Morris, Syn., p. 91, (1862); Kirby, Cat., p. 383, (1871); Mead, Wheeler's Rep., V, p. 777, (1875); (*Atlides H.*) Scud., Buff. Bull., III, p. 112, (1876). Southern States from Atlantic to Pacific.
- Atlides Dolichos*, Hüb., Zutr. Exot. Schmett., f. 219, 220, (1818).
- Atlides Dolichus*, Hüb., Verz. Bek. Schmett., p. 80, (1816)
- Thecla Juanita*, Scud., Proc. Bost. Soc. Nat. Hist., XI, p. 435, (1868); Kirby, Cat., p. 383, (1871).
- Larva on *Quercus Cinerea* and other oaks.
82. M-ALBUM, BDL.-LEC., Lep. Am. Sept., p. 86, t. 26, (1833); Morris, Syn., p. 92, (1862); Kirby, Cat., p. 390, (1871); (*Eupsyche M.*) Scud., Buff. Bull., III, p. 112, (1876). Southern States.
- T. Psyche*, Bdl.-Lec., Lep. Am. Sept., p. 88, t. 27, (1833); Morris, Syn., p. 93, (1862); Kirby, Cat., p. 390, (1871).
- Larva on *Astragalus* and *Quercus*.
83. MELINUS, HUB., (*Strymon M.*), Zutr. Ex. Schmett., f. 121, 122, (1818); (*Thecla M.*) West., Gen. Diur. Lep., p. 486, (1852); Mead, Wheeler's Rep., V, p. 778, (1875); (*Uranotes M.*) Scud., Buff. Bull., III, p. 107, (1876). Canada, United States and Territories from Atlantic to Pacific.
- T. Hyperici*, Bdl.-Lec., Lep. Am. Sept., p. 90, t. 28, (1833); Morris, Syn., p. 94, (1862); Kirby, Cat., p. 396, (1871).
- T. Favonius*, Bdl.-Lec., Lep. Am. Sept., p. 95, t. 30, (1833); Morris, Syn., p. 95, (1862).
- T. Humuli*, Harris, Ins. Inj. Veg., 1st Ed., p. 215, (1841), 2d Ed., p. 235, (1852), 3d Ed., p. 276, t. 4, (1862); Kirby, Cat., p. 395, (1871).
- T. Pan*, Harris, Hitch. Rep. Geol., Min., etc., Mass., 590, (1833).
- T. Silenus*, Dbldy., List B. M., 2, p. 31, (1847).
- T. Melinus var. Pudica*, Hy. Edwds., Proc. Cal. Acad. Nat. Sc., VI, (1876).
- Larva on *Humulus Lupulus*, *Crataegus*.
84. CECROPS, FABR., (*Hesp. C.*), Ent. Syst., III, I, p. 270, (1793); (*Polyom. C.*) Godt., Enc. Meth., IX, p. 636, (1819); (*Thecla C.*) Dbldy.-West., Gen. Diur. Lep., 485, (1850-1852); Kirby, Cat., p. 386, (1871); (*Calycopis C.*) Scud., Buff. Bull., III, p. 108, (1876). Southern United States, West Indies, Cent. Am.

- Rusticus Armatus* Pocas, Hüb., Sam. Ex. Schmett., 1, (1806-1824); (*Thecla P.*) Bdl.-Lec., Lep. Am. Sept., p. 111, t. 35, (1833); Morris, Syn., p. 103, (1862); Kirby, Cat., p. 395, (1871).
Strymon Beon, Hüb., Verz. Bek. Schmett., p. 75, (1816).
85. HUGON, GODT., (*Polyom.*), Enc. Meth., IX, p. 640, Florida, (1823). W. Indies.
Thecla Hugo, Dbldy.-West.-Hew., Gen. Diur. Lep., t. 74, f. 4, (1852).
86. FAVONIUS, ABB.-SMITH, (*Pap. F.*), Ins. Ga., I, p. 27, S. Carolina, t. 14, (1797); (*Polyom. F.*) Godt., Enc. Meth., IX, Georgia, p. 635, (1823); (*Thecla F.*) Dbldy., List Ins. B. Florida, M., 2, 31, (1847); Kirby, Cat., p. 395, (1871); Alabama. Scud., Buff. Bull., III, p. 111, (1876).
 Larva on black oak.
87. AUTOLYCUS, W. H. EDWDS., Trans. Am. Ent. Soc., III, Texas, p. 271, (1871); Scud., Buff. Bull., III, p. 111, Kansas. (1876).
- var. a.—with the orange patch on primaries obscured or represented by only a small spot.
 Larva on *Quercus Obtusiloba*.
88. ALCESTIS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. Texas. 271, (1871); Scud., Buff. Bull., III, p. 111, (1876).
89. CALANUS, HUB., (*Rusticus Armatus C.*), Sam. Ex. Canada, Schmett., 1, (1806-1824); (*Strymon C.*) Ind. Ex. United Lep. 2, (1821); (*Thecla C.*) Dbldy., List Lep. B. States east of M., 2, p. 30, (1847); Dbldy.-West.-Hew., Gen. the Rocky Diur. Lep., II, p. 486, (1850-1852); Kirby, Cat., Mountains. p. 395, (1871); Scud., Buff. Bull., III, p. 110, (1876).
Polyommatus Falacer, Godt., Enc. Meth., IX, p. 633, (1819); (*Thecla F.*) Bdl.-Lec., Lep. Am. Sept., p. 92, t. 29, (1833); Morris, Syn. p. 95, (1862).
Thecla Inorata, G. & R. Trans. Am. Ent. Soc., I, p. 323, (1868); Kirby, Cat., p. 395, (1871).
 Larva on various oaks.
- ab. a. LORATA, G. & R., Trans. Am. Ent. Soc., I, p. 171, Virginia. (1867); Kirby, Cat., p. 396, (1871); Scud., Buff. Bull., III, p. 110, (1876).
 Differs from the preceding in having a pale subbasal line on under surface of both wings.
90. AURETORUM, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. California. 288, (1852); Morris, Syn., p. 99, (1862); Kirby, Cat., p. 396, (1871).
91. LIPAROPS, BDL.-LEC., Lep. Am. Sept., p. 99, t. 31, Can., N. E., (1833); Morris, Syn., p. 96, (1862); Kirby, Cat., M'dl, Soth'n, p. 396, (1871); Scud., Buff. Bull., III, p. 111, and West'n States to (1876). Colorado.

- T. Strigosa*, Harris, Morris, Syn., p. 101, (1862); Ins. Inj. Veg., Flint's Ed., p. 276, (1862); W. H. Edwds., Butt. N. Am., I, t. II, Thecla, (1869); Kirby, Cat., p. 396, (1871).
Larva on oak.
- †*92. ACIS, DRU., (*Pap. P.*), Ill. Ex. Ent., I, t. I, (1773); Florida, (*Thecla*¹A.) Kirby, Cat., p. 398, (1871); (*Uranotes* W. Indies. A.) Scud., Buff. Bull., III, p. 108, (1876).
Pap. Mars, Fabr., Gen. Ins., p. 268, (1777); Ent. Syst., III, 1, p. 265, (1793); (*Polyom. M.*) Godt., Enc. Meth., IX, p. 635, (1823); (*Strymon M.* Hüb., Sam. Ex. Schmett., II, (1806-1824).
- †*93. NINUS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 270, (1871); Mead, Wheeler's Rep., V, p. 778, (1875); Scud., Buff. Bull., III, p. 109, (1876). Colorado.
- *94. ONTARIO, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 209, (1868); Butt. N. Am., I, t. II, Thecla, (1869); Kirby, Cat., p. 396, (1871); Scud., Buff. Bull., III, p. 111, (1876). Canada.
- †*95. TETRA, BEHR, MSS. W. H. Edwds. Trans. Am. Ent. Soc., III, p. 19, (1870); Kirby, Cat., p. 401, (1871); Scud., Buff. Bull., III, p. 111, (1876). California.
96. SÆPIUM, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 288, (1852); Morris, Syn., p. 99, (1862); Kirby, Cat., p. 396, (1871); Scud., Buff. Bull., III, p. 109, (1876); Mead, Wheeler's Rep., V, p. 779, (1875). California.
T. Chalcis, Behr, MSS. W. H. Edwds., Trans. Am. Ent. Soc., II, p. 376, (1869); Kirby, Cat., p. 400, (1871).
- †*97. ADENOSTOMATIS, HY. EDWDS., Proc. Cal. Acad. Sc., VI, (1876); Scud., Buff. Bull., III, p. 111, (1876). California.
98. EDWARDSII, SAUNDERS, MSS., Can. Ent., I, p. 98, (1869); G. & R., Trans. Am. Ent. Soc., I, p. 172, (1867); Scud., Buff. Bull., III, p. 110, (1876). Canada, New England and Middle States, Western States to Texas and Colorado.
T. Falacer, Harr., (*nec Godt.*), Ins. Inj. Veg., Flint's Ed., p. 276, (1862).
T. Calanus, G. & R., (*nec Hüb.*), Trans. Am. Ent. Soc., I, 172, 173, (1867).
T. Fabricii, Kirby, Cat., p. 654, (1871).
Larva on *Quercus Illicifolia*.
99. ACADICA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 55, (1862); Butt. N. Am., I, t. I, Thecla, (1868); Kirby, Cat., p. 396, (1871); Scud., Buff. Bull., p. 109, (1876). Canada, New England and Middle States;
T. Californica, W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 223, (1862); Kirby, Cat., p. 396, (1871); Mead, Wheeler's Rep., V, p. 779, (1875). Western States and Territories to the Pacific
T. Souhegan, Whitney, Proc. Bost. Soc. Nat. Hist., XII, p. 162, (1868); Kirby, Cat., p. 401, (1871).
T. Borus, Bdl., Lep. Cal., p. 43, (1869).
T. Dryope, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 19, (1870); Kirby, Cat., p. 400, (1871); Scud., Buff. Bull., III, p. 109, (1876).

T. Cygnus, W. H. Edwards., Trans. Am. Ent. Soc., III, p. 207, (1871); (*T. Cygnus*) Scud., Buff. Bull., III, p. 109, (1876).

Larva on willow.

A species subject to some variation, more particularly in the extent of the reddish colour near the inner angle, etc., on upper surface of wings.

- †*100. SYLVINUS, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 287, (1852); Morris, Syn., p. 99, (1862); Kirby, Cat., p. 396, (1871); Mead, Wheeler's Rep., V, p. 778, (1875); Scud., Buff. Bull., III, p. 109, (1876). California.
101. NELSONI, BDL., Lep. Cal., p. 43, (1869); Kirby, Cat., p. 399, (1871); Scud., Buff. Bull., III, p. 109, (1876). California.
102. DAMON, CRAM., (*Pap. D.*), Pap. Ex., IV, t. 390, C, D, (1782); (*Thecla D.*) Hew., Ill. Diur. Lep., t. 37, (1867); Harr., Hitch. Rep., 1st Ed., p. 590, (1833); Kirby, Cat., p. 387, (1871); Scud., Buff. Bull., III, p. 108, (1876). United States, from the Atlantic westward to Texas.
- Lycus Gryneus*, Hüb., Verz. Bek. Schmett., p. 74, (1816).
- Polyommatus Damastus*, Godt., Enc. Meth., IX, p. 640, (1823); (*Thecla D.*) Morris, Syn., p. 100, (1862).
- Papilio Simæthis*, Dru., Ill. Ex. Ent., I, t. 1, (1773); (*Polyom. S.*) Godt., Enc. Meth., IX, p. 643, (1823); (*Lycus S.*) Hüb., Sam. Ex. Schmett., (1806-1824); (*Thecla S.*) Kirby, Cat., p. 398, (1871).
- Thecla Smilacis*, Btl.-Lec., Lep. Am. Sept., p. 107, t. 33, (1833); Morris, Syn., p. 98, (1862).
- T. Auburniana*, Harris, Ins. Inj. Veg., Flint's Ed., p. 277, (1862); Morris, Syn., p. 101, (1862).
- T. Castalis*, W. H. Edwards., Trans. Am. Ent. Soc., III, p. 208, (1871).
- Larva on *smilar*.
- †*103. SIVA, W. H. EDWARDS., Trans. Am. Ent. Soc., V, p. 110, (1874); Mead, Wheeler's Rep., V, p. 778, (1875); Scud., Buff. Bull., III, p. 109, (1876). Arizona.
- Perhaps identical with the preceding.
- †*104. SPINETORUM, BDL., MSS. Hew., Ill. Diur. Lep., III, p. 94, t. 45, (1867); Lep. Cal., p. 42, (1869); Scud., Buff. Bull., III, p. 109, (1876). California.
105. COLUMELLA, FABR., (*Hesperia C.*), Ent. Syst., III, 1, p. 282, (1793); (*Polyom. C.*) Godt., Enc. Meth., IX, p. 638, (1823); (*Callicista C.*) Scud., Buff. Bull., III, p. 107, (1876). ? New York, ? Florida, Cuba, Mex., Cent. Am., Venezuela, etc.
- Tmolus Eurytulus*, Hüb., Sam. Ex. Schmett., II, (1806-1824); (*Thecla E.*) Kirby, Cat., p. 395, (1871).
- Lycena Modesta*, Maynard, Ann. Nat., VII, p. 178, (1873); (*Lycena M.*) Morrison, Buff. Bull., I, p. 188, (1874).

Callicista Ocellifera, Grote, Buff. Bull., I, p. 178, (1873).

The foundation for placing this in our fauna rests on one ♂ said to have been taken near Aurora, New York, in July, 1873.

- †*106. SPADIX, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, California. (1876).
- †*107. BEHRH, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. California; 18, (1870); (*Callipsyche B.*) Seud., Buff. Bull., III, Mazatlan, p. 107, (1876). Mexico.
- *108. LÆTA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. Canada, At- 56, (1862); Butt. N. Am., I, t. I, Thecla, (1868); lantic U. S. Kirby, Cat., p. 401, (1871); (*Erora L.*) Seud., Buff. from Maine Bull., p. 106, (1876). to Virginia.
- ♀ *Thecla Clothilde*, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 15, (1863); Seud., Proc. Bost. Soc. Nat. Hist., XI, p. 377, (1868).
109. TITUS, FABR., (*Hesperia T.*), Ent. Syst., III, 1, p. 297, Canada, (1793); (*Polyom. T.*) Godt., Enc. Meth., IX, United States and p. 688, (1823); (*Lycæna T.*) Dbldy.—Hew., Gen. Territories Diur. Lep., p. 494, (1850–1852); (*Thecla T.*) Kirby, from the At- Cat., p. 399, (1871); (*Strymon T.*) Seud., Buff. Bull., lantic to the III, p. 105, (1876). Pacific.
- Strymon Mopsus*, Hüb., Verz. Bek. Schmett., p. 74, (1816); (*Chrysophanus M.*) Zutr. Ex. Schmett., f. 135, 136, (1818); (*Thecla M.*) Bdl.—Lec., Lep. Am. Sept., p. 109, t. 34, (1833); Morris, Syn., p. 102, (1862); Harris, Ins. Inj. Veg., Flint's Ed., p. 278, (1862); Mead, Wheeler's Rep., V, p. 779, (1875). Larva on oak and *Eupatorium Cælestinum*.
110. FULIGINOSA, W. H. EDWDS., Proc. Acad. Nat. Sc., California. Phil., p. 164, (1861); (*Cupido F.*) Kirby, Cat., p. 364, (1871); (*Lyc. F.*) Streck., Lep., Rhop.—Het., p. 89, (1874); (*Satyrium F.*) Seud., Buff. Bull., III, p. 106, (1876).
- Lycæna Suasa*, Bdl., Lep. Cal., p. 51, (1869).
111. NIPHON, HUB., (*Lieus N.*), Zutr. Ex. Schmett., f. 203, Canada, 204, (1823); (*Thecla N.*) Bdl.—Lec., Lep. Am. Sept., United p. 105, t. 33, (1833); Morris, Syn., p. 98, (1862); States and Harris, Ins. Inj. Veg., Flint's Ed., p. 278, (1862); Territories Kirby, Cat., p. 399, (1871); (*Incisalia N.*) Seud., from the At- Buff. Bull., III, p. 104, (1876). lantic to the Pacific.
- T. Nephon*, West.—Hew., Gen. Diur. Lep., p. 486, (1850–1852).
- T. Eryphon*, Bdl., Ann. Soc. Ent., Fr., 2me Ser. X, p. 289, (1852); Kirby, Cat., p. 399, (1871); Mead, Wheeler's Rep., V, p. 780, (1875); (*Incisalia E.*) Seud., Buff. Bull., III, p. 104, (1876).
- T. Eriphon*, Morris, Syn., p. 100, (1862). Larva on various species of *Pinus*.

112. IRUS, GODT., (*Polyommatus I.*) Enc. Meth., IX, p. 674, (1823); (*Thecla I.*) Bdl.-Lec., Lep. Am. Sept., p. 101, t. 31, (1833); Kirby, Cat., p. 399, (1871); (*Incisalia I.*) Scud., Buff. Bull., III, p. 104, (1876). Occupies the same territory as *Niphon* and *Titus*.
T. Iris, Morris, Syn., p. 97, (1862).
 var. a. ARSACE, BDL.-LEC., Lep. Am. Sept., p. 103, t. 32, (1833); Morris, Syn., p. 97, (1862); Kirby, Cat., p. 399, (1871).
 Median lines wanting the distinct white at termination on costa of both wings and on inner margin of secondaries.
 var. b. HENRICI, G.-R., Trans. Am. Ent. Soc., I, p. 174, (1867).
 Smaller. Inferiors tailless.
 Larva on *Vaccinium Corymbosum*.
113. AUGUSTUS, KIRBY, Fauna Bor. Am., IV, p. 298, t. 3, (1837); Morris, Syn., p. 103, (1862); Harris, Ins. Inj. Veg., p. 279, f. 108, (1862); (*Incisalia A.*) Scud., Buff. Bull., III, p. 104, (1876). Found in same territory as the preceding.
T. Augustinus, West., Gen. Diur. Lep., p. 486, (1850-1852); Kirby, Cat., p. 395, (1871).
T. Iroides, Bdl., Ann. Soc. Ent., Fr., 2me Ser. X, p. 289, (1852); Morris, Syn., p. 100, (1862); Kirby, Cat., p. 399, (1871); Mead, Wheeler's Rep., V, p. 780, (1875).
114. DUMETORUM, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 291, (1852); Morris, Syn., p. 100, (1862); Kirby, Cat., p. 398, (1871); (*Callophrys D.*) Scud., Buff. Bull., III, p. 105, (1876). Nevada, California and Oregon.
T. Viridis, W. H. Edwards., Proc. Acad. Nat. Sc., Phil., p. 223, (1862); Kirby, Cat., p. 402, (1871).
T. Affinis, W. H. Edwards., Proc. Acad. Nat. Sc., Phil., p. 223, (1862).
 Larva on *Hosackia*.
 This is the American form of *T. Rubi*, L., from which it differs so little, if any, as scarce to deserve a separate designation.

GENUS 2. LYCÆNA, FABR.

(*Polyommatus*, Latr.)

- †115. TEJUA, REAK., Proc. Acad. Nat. Sc., Phil., p. 245, (1866); (*Cupido T.*) Kirby, Cat., p. 356, (1871); Southern California.
 (*Lycæna T.*) Streck., Lep., Rhop.-Het., p. 82, t. X, (1874); (*Everes T.*) Scud., Buff. Bull., III, p. 113, (1876).
- †116. MONICA, REAK., Proc. Acad. Nat. Sc., Phil., p. 244, (1866); (*Cupido M.*) Kirby, Cat., p. 356, (1871); Southern California.
 (*Lycæna M.*) Streck., Lep., Rhop.-Het., p. 82, t. X, (1874).

117. COMYNTAS, GODT., (*Polyom. C.*), Enc. Meth., IX, p. 660, (1823); (*Argus C.*) Bdl.-Lec., Lep. Am. Sept., p. 120, t. 36, (1833); (*Polyom. C.*) Morris, Syn., p. 83, (1862); Harris, Ins. Inj. Veg., Flint's Ed., p. 275, (1862); (*Cupido C.*) Kirby, Cat., p. 356, (1871); (*Lycæna C.*) Streck., Lep., Rhop.-Het., p. 82, (1874); Mead, Wheeler's Rep., V, p. 783, (1875); (*Everes C.*) Scud., Buff. Bull., III, p. 114, (1876).
Larva on *Phaseolus Perennis*, *Lespedeza Capitata*. Canada, southward to Gulf of Mexico, and westward from the Atlantic to the Rocky Mountains.
118. AMYNTULA, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 294, (1852); (*Polyom. A.*) Morris, Syn., p. 87, (1862); (*Lycæna A.*) Streck., Lep., Rhop.-Het., p. 82, (1874); (*Everes A.*) Scud., Buff. Bull., III, p. 114, (1876).
Cupido Comyntas var. *Amyntula*, Kirby, Cat., p. 356, (1871). California.
- †*119. MARINA, REAK., Proc. Acad. Nat. Sc., Phil., p. 87, (1868); (*Cupido M.*) Kirby, Cat., p. 351, (1871); (*Leptotes M.*) Scud., Buff. Bull., III, p. 124, (1876).
Lampides Cassius, Butl., Proc. Zool. Soc., Lon., p. 354, (1874). Southern California, Mexico.
Lyc. Cassioides, Bdl., Lep. Guat., p. 16, (1870).
- †*120. THEONUS, LUC., Sagra Hist. Nat. Cuba, VII, p. 611, t. 16, (1856); (*Cupido T.*) Kirby, Cat., p. 351, (1871); (*Leptotes T.*) Scud., Buff. Bull., III, p. 124, (1876). Key West, Florida.
Lyc. Cassius var. *Floridensis*, Morrison, Buff. Bull., I, p. 187, (1874).
121. EXILIS, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 295, (1852); (*Polyom. E.*) Morris, Syn., p. 87, (1862); (*Cupido E.*) Kirby, Cat., p. 357, (1871); (*Lycæna E.*) Streck., Lep., Rhop.-Het., p. 83, (1874).
Brephidium Exile, Scud., Buff. Bull., III, p. 124, (1876). California, Arizona, Utah, Nevada, Texas.
Lyc. Fea, W. H. Edwards, Trans. Am. Ent. Soc., III, p. 211, (1871); (*Brephidium F.*) Scud., Buff. Bull., III, p. 123, (1876).
122. ISOPHTHALMA, H-S., Corr.-Blatt. Zool. Min. Ges. Regensburg, XVI, p. 141, (1862); Stett. Ent. Zeit., p. 73, (1869); (*Cupido I.*) Kirby, Cat., p. 350, (1871); (*Brephidium I.*) Scud., Buff. Bull., III, p. 123, (1876). Florida, Cuba.
Lyc. Pseudofea, Morrison, Buff. Bull., I, p. 186, (1874).
123. ANTIBUBASTUS, HUB., (*Hemiargus A.*), Zutr. Exot. Schmett., p. 19, f. 99, 100, (1818); (*Thecla A.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 486, (1850-1852); (*Cupido A.*) Kirby, Cat., p. 350, (1871); (*Hemiargus A.*) Scud., Buff. Bull., III, p. 123, (1876). Southern States, West Indies.

- Rusticus Adolescents Hanno*, Hüb., Sam. Exot. Schmett., I, (1806-1816); (*Cupido H.*) Kirby, Cat., p. 350, (1871); (*Lycena H.*) Streck., Lep., Rhop.-Het., p. 83, (1874).
- Lyc. Hanno*, Luc., Sagra Hist. Nat. Cuba, VII, p. 612, (1856).
- Polyom. Filenus*, Poey, Cent. Lep. Cuba, t. II, (1833); (*Argus F.*) Bdl.-Lec., Lep. Am. Sept., p. 114, (1833); Morris, Syn., p. 82, (1862).
- Argus Pseudoptiletes*, Bdl.-Lec., Lep. Am. Sept., p. 114, t. 35, (1833).
- Lyc. Astenidas*, Bdl., MSS. Luc., Sag. Hist. Nat. Cuba, VII, p. 613, (1856).
- †*124. AMMON, LUC., Sag. Hist. Nat. Cuba, VII, p. 612, t. 16, (1856); (*Cupido A.*) Kirby, Cat., p. 351, (1871); (*Hemiargus A.*) Send., Buff. Bull., III, p. 122, (1876). Southern Florida, West Indies.
125. ISOLA, REAK., Proc. Acad. Nat. Sc., Phil., p. 332, (1866); (*Cupido I.*) Kirby, Cat., p. 376, (1871); (*Lyc. I.*) Streck., Lep., Rhop.-Het., p. 84, (1874); Mead, Wheeler's Rep., V, p. 783, (1875); (*Hemiargus I.*) Send., Buff. Bull., III, p. 123, (1876). Texas, Colorado, Kansas, Arizona, New Mexico, Cent. Am.
- Lyc. Gyas*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 210, (1871); Streck., Lep., Rhop.-Het., p. 84, (1874).
- Lyc. Alice*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 272, (1871); Streck., Lep., Rhop.-Het., p. 88, (1874).
126. ACMON, DBLDY.-HEW., Gen. Diur. Lep., II, p. 294, t. 76, (1852); (*Polyom. A.*) Morris, Cat. Lep. N. Am., p. 12, (1860); (*Cupido A.*) Kirby, Cat., p. 358, (1871); (*Lycena A.*) Streck., Lep., Rhop.-Het., p. 88, (1874); Mead, Wheeler's Rep., V, p. 782, (1875); (*Rusticus A.*) Send., Buff. Bull., III, p. 122, (1876). California, Nevada, Utah, Arizona.
- Lyc. Antegon*, Bdl., Ann. Soc. Ent., Fr., 2me Ser. X, p. 295, (1852); (*Polyom. A.*) Morris, Cat. Lep. N. Am., p. 12, (1860); Syn., p. 87, (1862); (*Cupido A.*) Kirby, Cat., p. 358, (1871). Larva on *Hosackia*.
127. MELISSA, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 346, (1873); Streck., Lep., Rhop.-Het., p. 88, t. 10, (1874); Mead, Wheeler's Rep., V, p. 783, t. XXXVI, (1875); (*Rusticus M.*) Send., Buff. Bull., III, p. 122, (1876). Utah, Arizona, Colorado, New Mexico.
128. ANNA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 163, (1861); Morris, Syn., p. 329, (1862); (*Cupido A.*) Kirby, Cat., p. 358, (1871); (*Lyc. A.*) Streck., Lep., Rhop.-Het., p. 88, t. X, (1874); Mead, Wheeler's Rep., V, p. 782, (1875); (*Rusticus A.*) Send., Buff. Bull., III, p. 122, (1876). California, Colorado, Utah, Nevada.

†*Lyc. Cajona*, *Reak.*, Proc. Ent. Soc., Phil., VI, p. 147, foot-note, (1866).

Lyc. Argyroxus, *Behr*, Proc. Cal. Acad. Nat. Sc., III, p. 281, (1867).

Lyc. Philemon, *Bdl.*, Lep. Cal., p. 47, (1869).

129. SCUDDERII, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 164, (1861); Morris, Syn., p. 329, (1862); (*Cupido S.*) Kirby, Cat., p. 358, (1871); (*Lyc. S.*) Streck., Lep., Rhop.-Het., p. 87, (1874); (*Rusticus S.*) Scud., Buff. Bull., III, p. 122, (1876).
S. Labr., Canada, New York, Michigan.
Larva on *Lupinus Perennis*.

130. OPTILETE, KNOCH, (*Pap. O.*), Beitr. Ins., I, p. 76, t. 5, (1781); Esp., Schmett., I, t. 79, (1782); Fabr., Mant., II, 74, (1787); Hüb., Eur. Schmett., I, f. 310, 312, (1793-1827); Ochs., I, 2, p. 51, (1808); (*Polyom. O.*) Gott., Enc. Meth., IX, p. 686, (1823); (*Lyc. O.*) Frey., Neu. Beit., 451, 2, 3, 656, (1831-1858); (*Cupido O.*) Kirby, Cat., p. 359, (1871); (*Lyc. O.*) Stgr., Cat., p. 10, (1871); Streck., Lep., Rhop.-Het., p. 120, (1876).
Alaska, Kodiak, Scandinavia, Germany, Russia, Siberia.

A number of examples from Alaska presented not the slightest point of distinction from the many European examples with which I have compared them.

131. BATTOIDES, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 282, (1867); (*Cupido B.*) Kirby, Cat., p. 360, (1871); (*Lyc. B.*) Streck., Lep., Rhop.-Het., p. 87, (1874); Mead, Wheeler's Rep., V, p. 782, (1875); (*Rusticus B.*) Scud., Buff. Bull., III, p. 122, (1876).
Mountains of Colorado, Nevada and California.
Lyc. Glaucou, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 210, (1871); Streck., Lep., Rhop.-Het., p. 88, (1874); Mead, Wheeler's Rep., V, p. 782, (1875).

132. SHASTA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 224, (1862); (*Thecla S.*) Kirby, Cat., p. 401, (1871); (*Lyc. S.*) Streck., Lep., Rhop.-Het., p. 83, (1874); (*Rusticus S.*) Scud., Buff. Bull., III, p. 121, (1876).
Oregon, California and adjacent territory.
Lyc. Zelmira, *Feld.*, Reise Nov. Lep., II, p. 282, t. 35, (1865); (*Cupido Z.*) Kirby, Cat., p. 359, (1871).
Lyc. Calchas, *Behr*, Proc. Cal. Acad. Nat. Sc., III, p. 281, (1867); (*Cupido C.*) Kirby, Cat., p. 358, (1871); (*Lyc. C.*) Streck., Lep., Rhop.-Het., p. 88, (1874); Mead, Wheeler's Rep., V, p. 782, (1875).
Lyc. Nirium, *Bdl.*, Lep. Cal., p. 47, (1869).

- †*133. ENOPTES, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 298, (1852); (*Polyom. E.*) Morris, Syn., p. 89, (1862); (*Cupido E.*) Kirby, Cat., p. 363, (1871); (*Lyc. E.*) Streck., Lep., Rhop.-Het., p. 89, (1874); (*Rusticus E.*) Scud., Buff. Bull., III, p. 122, (1876).
California, Arizona, Nevada.

134. LUPINI, BDL., Lep. Cal., p. 46, n. 23, (1869); (*Cupido L.*) Kirby, Cat., p. 358, (1871); (*Lyc. L.*) Streck., Lep., Rhop.-Het., p. 88, (1874); (*Rusticus L.*) Seud., Buff. Bull., III, p. 121, (1876).
Agriades Minnehaha, Seud., Proc. Bost. Soc. Nat. Hist., XVII, 88. California, Montana.
135. PSEUDARGIOLUS, BDL.-LEC., (*Argus P.*), Lep. Am. Sept., p. 118, t. 36, (1833); Morris, Syn., p. 82, (1862); (*Polyom. P.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 274, (1862); (*Lycena P.*) W. H. Edwds., Proc. Ent. Soc., Phil., VI, p. 204, (1867); Butt. N. Am., I, t. II, *Lycena*, (1869); Streck., Lep., Rhop.-Het., p. 82, (1874); (*Cyaniris P.*) Seud., Buff. Bull., III, p. 114, (1876). Canada, U. S. east of Texas.
Pap. Argiolus, Abb.-Smith, Ins. Ga., I, t. 15, (1797).
Lyc. Neglecta, W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 57, (1862); Butt. N. Am., I, t. II, *Lyc.*, (1869); Packard, Guide, p. 265, (1869); (*Cyaniris N.*) Seud., Buff. Bull., III, p. 115, (1876).
Cupido Pseudargiolus et *Neglecta*, Kirby, Cat., p. 371, (1871).
 Larva on *Actinomeris*.
- 135 a. PIASUS, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 299, (1852); (*Polyom. P.*) Morris, Syn., p. 89, (1862); (*Cupido P.*) Kirby, Cat., p. 363, (1871); (*Lyc. P.*) Streck., Lep., Rhop.-Het., p. 82, (1874); Mead, Wheeler's Rep., V, p. 785, (1875); (*Cyaniris P.*) Seud., Buff. Bull., III, p. 114, (1876). California, Oregon and adjacent territory.
Lycena Echo, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 506, (1864).
136. LUCIA, KIRBY, Faun. Bor. Am., IV, p. 299, t. 3, (1837); (*Polyom. L.*) Morris, Syn., p. 90, (1862); Harris, Ins. Inj. Veg., Flint's Ed., p. 275, f. 105, 106, (1862); (*Lyc. L.*) Streck., Lep., Rhop.-Het., p. 82, (1874). Labrador, Canada, eastern U. S. to Virginia.
Lyc. Violacea, W. H. Edwds., Proc. Ent. Soc., Phil., VI, p. 201, (1866); Butt. N. Am., I, t. I, *Lyc.*, (1868).
Cupido Lucia et *Violacea*, Kirby, Cat., p. 368, (1871).
Lyc. Pseudargiolus var. *Lucia*, Mead, Wheeler's Rep., V, p. 785, (1875).
Cyaniris Violacea et *Lucia*, Seud., Buff. Bull., III, p. 114, 115, (1876).
 The type form has a large dark brown patch on disc of under side of secondaries. See Kirby's and Harris' figures.
- ab. a. ♀ NIG., figured in W. H. Edwds. Butt. N. Am., I, t. I, f. 4, *Lyc.*, (1868). Virginia.
 The prevalent ♀ form in Virginia, upper surface entirely dark brown.
- ab. b. ♀ INTERMEDIA,—a form intermediate in colour of upper surface between the blue and brown female, neither one nor the other but partaking in a measure of the characteristics of both. Rare. Virginia.

137. SONORENSIS, FELD., Reise Nov. Lep., II, p. 281, t. 35, (1865); (*Cupido S.*) Kirby, Cat., p. 354, (1871); (*Lyc. S.*) Streck., Lep., Rhop.-Het., p. 105, (1875). *Lyc. Regia*, Bdl., Lep. Cal., p. 46, (1869); (*Cupido R.*) Kirby, Cat., p. 366, (1871); (*Lyc. R.*) Streck., Lep., Rhop.-Het., p. 87, (1874); W. H. Edwds., Butt. N. Am., II, t. I, *Lyc.*, (1875); (*Philotes Regia et Sonorensis*) Scud., Buff. Bull., III, p. 116, (1876). Mt. Diablo, Shasta, San Diego, S. California; Sonora.
138. SAGITTIGERA, FELD., Reise Nov. Lep., II, p. 281, t. 35, (1865); (*Cupido S.*) Kirby, Cat., p. 354, (1871); (*Phaedrotes S.*) Scud., Buff. Bull., III, p. 116, (1876). Los Angeles, S. Cal., Colorado, Sonora.
- ‡*Lyc. Catilina*, Reak., Proc. Acad. Nat. Sc., Phil., p. 244, (1866); (*Cupido C.*) Kirby, Cat., p. 376, (1871); (*Lyc. C.*) Streck., Lep., Rhop.-Het., pp. 86, 105, 120, (1874-1876), t. X, f. 1, 2, (1874).
- Lyc. Lorquini*, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 280, (1867); (*Cupido L.*) Kirby, Cat., p. 377, (1871); (*Lyc. L.*) Streck., Lep., Rhop.-Het., p. 90, (1874), p. 120, (1876).
- Lyc. Rhœa*, Bdl., Lep. Cal., p. 51, (1869); (*Cupido R.*) Kirby, Cat., p. 367, (1871); (*Lyc. R.*) Streck., Lep., Rhop.-Het., p. 88, (1874), p. 105, (1875).
- Lyc. Viaca*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 209, (1871); Streck., Lep., Rhop.-Het., p. 89, (1874).
- Lyc. Dawnia*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 272, (1871); Mead, Wheeler's Rep., V, p. 785, (1875).
139. LYGDAMUS, DBLDY., (*Polyom. L.*), Entom., p. 209, (1842); (*Lyc. L.*) W. H. Edwds., Butt. N. Am., I, t. I, *Lyc.*, (1868); (*Cupido L.*) Kirby, Cat., p. 368, (1871); (*Lyc. L.*) Streck., Lep., Rhop.-Het., p. 84, (1874); Mead, Wheeler's Rep., V, p. 784, (1875); (*Nomiades L.*) Scud., Can. Ent., VIII, p. 23, (1876), Buff. Bull., III, p. 117, (1876). Atlantic States from New York to Georgia; Indiana, Ohio, Michigan.
- †*139 a. ORO, SCUD., (*Nomiades O.*), Can. Ent., VIII, p. 23, (1876); Buff. Bull., III, p. 117, (1876). Colorado.
- Probably a var. of the preceding.
140. COUPERI, GROTE, (*Glaucopsyche C.*) Buff. Bull., I, p. 185, (1874); (*Nomiades C.*) Scud., Can. Ent., VIII, p. 22, (1876); Buff. Bull., III, p. 117, (1876). *Lyc. Pembina*, W. H. Edwds., Syn. N. Am. Butt., p. 37, (1872); Streck., Lep., Rhop.-Het., pp. 69, 84, t. X, (1874). S. Labr., Anticosti, Lake Winnipeg.
141. ANTIACIS, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 300, (1852); (*Polyom. A.*) Morris, Syn., p. 90, (1862); (*Cupido A.*) Kirby, Cat., p. 371, (1871); (*Lyc. A.*) Streck., Lep., Rhop.-Het., p. 84, (1874); Mead, Wheeler's Rep., V, p. 785, (1875); (*Nomiades A.*) Scud., Can. Ent., VIII, p. 22, (1876); Buff. Bull., III, p. 117, (1876). California, Oregon, Br. Col.

- Lyc. Mertila*, W. H. EDWDS., Proc. Ent. Soc., Phil., VI, p. 206, (1866); Streck., Lep., Rhop.-Het., p. 85, (1874).
142. BEHRH, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. California.
224, (1862); (*Thecla B.*) Kirby, Cat., p. 400, (1871); (*Lyc. B.*) Streck., Lep., Rhop.-Het., p. 84, (1874); (*Nomiades B.*) Scud., Can. Ent., VIII, p. 23, (1876); Buff. Bull., III, p. 117, (1876).
Lyc. Polyphemus, Bdl., Lep. Cal., p. 49, (1869); (*Cupido P.*) Kirby, Cat., p. 373, (1871).
143. XERCES, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 296, California.
(1852); (*Polyom. X.*) Morris, Syn., p. 88, (1862); (*Cupido X.*) Kirby, Cat., p. 373, (1871); (*Lyc. X.*) Streck., Lep., Rhop.-Het., p. 86, (1874); (*Nomiades X.*) Scud., Can. Ent., VIII, p. 21, (1876); Buff. Bull., III, p. 117, (1876).
144. PHERES, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 297, California,
(1852); (*Polyom. P.*) Morris, Syn., p. 89, (1862); (*Cupido P.*) Kirby, Cat., p. 362, (1871); (*Lyc. P.*) Streck., Lep., Rhop.-Het., p. 85, (1874), p. 120, (1876); Mead, Wheeler's Rep., V, p. 785, (1875); (*Cupido P.*) Scud., Buff. Bull., III, p. 118, (1876). Oregon.
var. a. EYIUS, BDL., Lep. Cal., p. 49, (1869); (*Cupido E.*) Kirby, Cat., p. 363, (1871); (*Lyc. E.*) Streck., S. California,
Lep., Rhop.-Het., p. 89, (1874). Nevada.
Differs mainly in the shape of the median row of black spots on under side of primaries.
- ab. b. ARDEA, W. H. EDWDS., Trans. Am. Ent. Soc., Nevada.
III, p. 209, ♂, (1871); Streck., Lep., Rhop.-Het., p. 86, (1874); (*Cupido A.*) Scud., Buff. Bull., III, p. 118, (1876).
Under surface of secondaries devoid of the row of median spots, and with a large white spot near middle.
- †*ab. c. ORCUS, W. H. EDWDS., Trans. Am. Ent. Soc., II, California.
p. 376, (1869); (*Cupido O.*) Kirby, Cat., p. 377, (1871); (*Lyc. O.*) Streck., Lep., Rhop.-Het., p. 85, (1874); (*Cupido O.*) Scud., Buff. Bull., III, p. 118, (1876).
Under surface, with the exception of faint discal bars, immaculate.
- †*144 a. PHILEOS, BDL., Lep. Cal., p. 50, (1869); (*Cupido P.*) Kirby, Cat., p. 366, (1871); (*Lyc. P.*) Streck., California.
Lep., Rhop.-Het., p. 87, (1874); (*Cupido P.*) Scud., Buff. Bull., III, p. 118, (1876).
Lyc. Helios, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 208, (1871); Streck., Lep., Rhop.-Het., p. 89, (1874).
Probably a var. of *Pheres*.
145. FULLA, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. California.
194, (1870); (*Plebeius F.*) Kirby, Cat., p. 653, (1871); (*Lyc. F.*) Streck., Lep., Rhop.-Het., p. 89, (1874); (*Cupido F.*) Scud., Buff. Bull., III, p. 118, (1876).

- Lyc. Fuliginosa*, Streck., (*nec Edwards.*), Lep., Rhop.—Het., p. 89, (1874).
146. *SEPIOLUS*, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. California, 297, (1852); (*Polyom. S.*) Morris, Syn., p. 88, Nevada, (1862); (*Cupido S.*) Kirby, Cat., p. 373, (1871); Colorado. (*Lyc. S.*) Streck., Lep., Rhop.—Het., p. 90, (1874); Mead, Wheeler's Rep., V, p. 784, (1875); (*Cupido S.*) Seud., Buff. Bull., III, p. 119, (1876).
- ab. a. ♀ *AEHAJA*, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 280, (1867); (*Rusticus A.*) Seud., Buff. Bull., III, p. 121, (1876).
- Cupido Achaja*, Kirby, Cat., p. 366, (1871); (*Lyc. A.*) Streck., Lep., Rhop.—Het., p. 89, (1874).
- Lyc. Rufescens*, Bdl., Lep. Cal., p. 48, (1869); Mead, Wheeler's Rep., V, p. 784, (1875).
- A ♀ form, dark fulvous on upper surface and brown beneath.
147. *ICARIOIDES*, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. California, 297, (1852); (*Polyom. I.*) Morris, Syn., p. 88, Oregon, (1862); (*Cupido I.*) Kirby, Cat., p. 366, (1871); Colorado, (*Lyc. I.*) Streck., Lep., Rhop.—Het., p. 87, (1874); Nevada, p. 120, (1876); (*Cupido I.*) Seud., Buff. Bull., III, Brit. Col., p. 119, (1876). Alaska.
- Lyc. Lycea*, W. H. Edwards., Proc. Ent. Soc., Phil., II, p. 507, (1864); Trans. Am. Ent. Soc., III, p. 273, (1871); (*Cupido L.*) Kirby, Cat., p. 377, (1871); (*Lyc. L.*) Streck., Lep., Rhop.—Het., p. 88, (1874); Mead, Wheeler's Rep., V, p. 785, (1875).
- ‡*Lyc. Rapahoe*, Reak., Proc. Ent. Soc., Phil., VI, p. 146, (1866); (*Cupido R.*) Kirby, Cat., p. 377, (1871); (*Lyc. R.*) Streck., Lep., Rhop.—Het., p. 87, t. X, f. 14, 15, (1874), p. 120, (1876); Mead, Wheeler's Rep., V, p. 784, (1875).
- Lyc. Dardalus*, Behr, Proc. Cal. Acad. Sc., III, p. 280, (1867); (*Cupido D.*) Kirby, Cat., p. 366, (1871); (*Lyc. D.*) Streck., Lep., Rhop.—Het., p. 90, (1874).
- Lyc. Kodiak*, W. H. Edwards., Trans. Am. Ent. Soc., III, p. 20, (1870); (*Cupido K.*) Kirby, Cat., p. 376, (1871); (*Lyc. K.*) Streck., Lep., Rhop.—Het., p. 87, (1874); (*Cupido K.*) Seud., Buff. Bull., III, p. 120, (1876).
- var. a. *MARICOPA*, REAK., Proc. Acad. Nat. Sc., Phil., p. 245, (1866); (*Cupido M.*) Kirby, Cat., p. 377, (1871); (*Lyc. M.*) Streck., Lep., Rhop.—Het., p. 85, (1874); (*Cupido M.*) Seud., Buff. Bull., III, p. 119, (1876).
- Lyc. Pardalis*, Behr, Proc. Cal. Acad. Sc., III, p. 279, (1867); (*Cupido P.*) Kirby, Cat., p. 374, (1871); (*Lyc. P.*) Streck., Lep., Rhop.—Het., p. 89, (1874); (*Cupido P.*) Seud., Buff. Bull., III, p. 119, (1876).
- Lyc. Erymus*, Bdl., Lep. Cal., p. 48, (1869); (*Cupido*

- E.* Kirby, Cat., p. 366, (1871); (*Lyc. E.*) Streck., Lep., Rhop.-Het., p. 86, (1874).
Lyc. Mintha, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 194, (1870); Streck., Lep., Rhop.-Het., p. 89, (1874); (*Cupido M.*) Seud., Buff. Bull., III, p. 119, (1876).
Plebeius Mincha, Kirby, Cat., p. 653, (1871).
 A darker form.

The above synonymy of *Icarioides* I trust may prove correct.

Mr. Reakirt's original types of *Rapahoe*, both ♀, (though erroneously determined ♂♀ in the original description), are in my possession. *Dædalus* and *Pardalis* I received from their author, Dr. Behr. *Kodiak* I likewise received from that gentleman, who also had supplied Mr. W. H. Edwds. with the examples on which the latter based his description. The types of *Lycea*, *Maricopa* and *Mintha* I have not seen.

Mr. Edwds. says that *Maricopa* and *Mintha* are the same as the var. *Pardalis*.

Mr. Scudder tells us that *Pardalis* ♂ is possibly identical with *Maricopa*, which latter he pronounces distinct from *Icarioides*, and that *Pardalis* ♀, to which he places *Erymus* as a synonym, is distinct from both *Maricopa* and *Icarioides*.

Dr. Behr believes *Rapahoe* to be identical with his *Dædalus*.

Mr. Edwds. says *Dædalus* is a synonym of *Icarioides*, and that *Rapahoe* is the same as *Lycea*. Mr. Scudder informs us that both *Rapahoe* and *Lycea* are synonyms of Edwds.' *Pembina*, whilst Mr. Edwds. holds *Pembina* to be a distinct species and one that has not yet been barnacled with aliases.

- †*148. PEMBINA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., Slave Lake, p. 224, (1862); (*Thecla P.*) Kirby, Cat., p. 401, Brit. Col. (1871); (*Lyc. P.* incorrectly determined as identical with *Couperi*.) Streck., Lep., Rhop.-Het., p. 88, (1874); (*Cupido P.*) Seud., Buff. Bull., III, p. 119, (1876).
149. ORBITULUS, DEPRUNNER, (*Pap. O.*) Lep. Piedmontana, Colorada, p. 75, (1798); Esp., Schmett., t. 112, (1800); Ochs., Nevada, Schmett., I, 2, 43, (1808); Hüb., Eur. Schmett., I, California, f. 841, (1818-1827); (*Agriades O.*) Hüb., Verz. Bek. Schmett., p. 68, (1816); (*Polyom. O.*) Godt., Enc. Meth., IX, p. 688, (1823); (*Lyc. O.*) Stgr., Cat., p. 11, (1871); (*Cupido O.*) Kirby, Cat., p. 363, (1871); (*Lyc. O.*) Streck., Lep., Rhop.-Het., p. 86, t. X, (1874); (*Agriades O.*) Seud., Buff. Bull., III, p. 121, (1876).
- Papilio Meleager*, Hüb., Eur. Schmett., f. 522-525, (1798-1803), f. 761-762, (1803-1818).
- Lyc. Rustica*, W. H. Edwds., Proc. Ent. Soc., Phil., IV, p. 203, (1865); (*Cupido R.*) Kirby, Cat., p. 377, (1871); (*Lyc. R.*) Mead, Wheeler's Rep., V, p. 783, (1875).
- Lyc. Podarce*, Feld., Reise Nov. Lep., II, p. 282, t. 35, (1865); (*Cupido P.*) Kirby, Cat., p. 363, (1871); (*Agriades P.*) Seud., Buff. Bull., III, p. 120, (1876).
- †*Lyc. Tehama*, Reak., Proc. Acad. Nat. Sc., Phil., p. 246, (1866); (*Cupido T.*) Kirby, Cat., p. 377, (1871).

- Lyc. Cilla*, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 281, (1867); (*Cupido C.*) Kirby, Cat., p. 363, (1871).
Lyc. Nestos, Bdl., Lep. Cal., p. 50, (1869); (*Cupido N.*) Kirby, Cat., p. 363, (1871); (*Lyc. N.*) Streck., Lep., Rhop.-Het., p. 87, (1874).
150. *AQUILUS*, BDL., (*Argus A.*), Icones, I, p. 62, t. 12, (1832); Dup., Hist. Nat. Lep., Supl., I, 47, 6, 7, (1832); (*Lyc. A.*) H-S., Schmett. Enr., I, f. 24, 25, (1843), f. 343, 344, (1847); Walleng., Skand. Dagf., p. 211, (1847); Mosch., Wien. Ent. Mon., IV, p. 343, (1860); (*Lyc. A.*) Streck., Lep., Rhop.-Het., p. 86, (1874); (*Agriades A.*) Seud., Buff. Bull., III, p. 120, (1874).
Lyc. Orbitulus var. *Aquilo*, Stgr., Cat., p. 11, (1871).
Cupido Orbitulus var. *Aquilo*, Kirby, Cat., p. 363, (1871).
Lyc. Franklinii, Curtis, App. to Narr. Ross' 2d Voy., Nat. Hist., p. 69, t. A, (1835).
 †*151. *AMICA*, W. H. EDWDS., Proc. Ent. Soc., Phil., II, p. 80, (1863); (*Cupido A.*) Kirby, Cat., p. 376, (1871); (*Lyc. A.*) Streck., Lep., Rhop.-Het., p. 85, (1874).
Agriades ? Orbitulus, Seud., Buff. Bull., III, p. 121, (1876).
 †*152. *SPECIOSA*, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., V, p. 6, (1876).
 †*153. *CLARA*, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1877).
 154. *HETERONEA*, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 298, (1852); (*Polyom. H.*) Morris, Syn., p. 89, (1862); (*Cupido H.*) Kirby, Cat., p. 363, (1871); (*Lyc. H.*) Streck., Lep., Rhop.-Het., p. 92, t. X, (1874); W. H. Edwds., Butt. N. Am., II, t. I, *Lycæna*, (1875); Mead, Wheeler's Rep., V, p. 781, (1875); (*Cupido H.*) Seud., Buff. Bull., III, p. 120, (1876).
- (*Chrysophanus*, Hüb.)
155. *SIRIUS*, W. H. EDWDS., (*Chrysophanus S.*), Trans. Am. Ent. Soc., III, p. 270, (1871); Butt. N. Am., II, t. I, *Chrysophanus*, (1874); (*Lyc. S.*) Streck., Lep., Rhop.-Het., p. 92, t. X, (1874); (*Chrysophanus S.*) Mead, Wheeler's Rep., V, p. 781, (1875); (*Chalceria S.*) Seud., Buff. Bull., III, p. 126, (1876).
 †156. *RUBIDUS*, BEHR, (*Chrysophanus R.*), Proc. Ent. Soc., Phil., VI, p. 208, (1866); W. H. Edwds., Butt. N. Am., II, t. I, *Chrysophanus*, (1874); (*Lyc. R.*) Kirby, Cat., p. 345, (1871); Streck., Lep., Rhop.-Het., p. 92, (1874).
Chalceria Rubida, Seud., Buff. Bull., III, p. 126, (1876).
- Labrador,
Arctic
America.

McKenzie's
River, Brit.
Col.

Kern County
California.
Los Angeles,
California.
California,
Colorado,
Utah.

- †*157. CUPREUS, W. H. EDWDS., (*Chrysophanus* C.), Trans. Oregon. Am. Ent. Soc., III, p. 20, (1870); Butt. N. Am., II, t. I, *Chrysophanus*, (1874); (*Lyc.* C.) Kirby, Cat., p. 345, (1862); Streck., Lep., Rhop.-Het., p. 92, (1874).

Chalceria Cuprea, Seud., Buff. Bull., III, p. 125, (1876).

158. PHLEAS VAR. AMERICANA, D'URBAN, Can. Nat., V, p. 246, (1857); Harris, Ins. Inj. Veg., Flint's Ed., p. 273, (1862); Kirby, Cat., p. 344, (1871); Streck., Lep., Rhop.-Het., p. 91, (1874); (*Polyom.* A.) Morris, Syn., p. 91, (1862). Canada, U. S. and Territories from Atlantic to Pacific.

Polyommatus Hypophleas, Bdl., Ann. Soc. Ent., Fr., 2me Ser. X, p. 293, (1852); Morris, Syn., p. 84, (1862); Kirby, Cat., p. 344, (1871); (*Heodes* H.) Seud., Buff. Bull., III, p. 128, (1876).

- ‡ab. a. ♀ FASCIATA, NOB.—All the black spots on upper surface of primaries, save the one within the discoidal cell, are enormously enlarged and confluent, forming a broad, somewhat irregular, black band extending from costa to inner margin. Under surface exactly as in common form. Florida.

Larva on *Rumex Acetosella*.

159. THOE, BDL., (*Polyommatus* T.), Gray. Griff. An. King., t. 58, (1832); Bdl.-Lee., Lep. Am. Sept., p. 125, t. 38, (1833); Guér., Icon. Reg. An., t. 81, (1844); (*Chrysophanus* T.) West.-Hew., Gen. Diur. Lep., II, p. 498, (1852); (*Polyom.* T.) Morris, Syn., p. 84, (1862); (*Lyc.* T.) Kirby, Cat., p. 343, (1871); Streck., Lep., Rhop.-Het., p. 91, (1874); (*Chrysophanus* T.) Seud., Buff. Bull., III, p. 127, (1876). Canada, New England, States, New York, Pennsylvania, Ohio, Michigan, Minnesota, Kansas. Larva on *Polygonum*.

160. EPIXANTHE, BDL.-LEE., (*Polyommatus* E.), Lep. Am. Sept., p. 127, t. 38, (1833); Morris, Syn., p. 85, (1862); (*Lyc.* E.) Harris, Ins. Inj. Veg., Flint's Ed., p. 274, (1862); (*Polyom.* E.) Mosch., Stett. Ent. Zeit., p. 114, (1870); Stgr., Cat. Eur. Lep., p. 8, (1871); (*Lyc.* E.) Kirby, Cat., p. 343, (1871); Streck., Lep., Rhop.-Het., p. 90, (1874); (*Epidemia* E.) Seud., Buff. Bull., III, p. 128, (1876). British Columbia, New England, States, New York, Michigan, Wisconsin, Iowa.

Lycena Dorcas, Kirby, Faun. Bor. Am., IV, p. 299, t. 4, (1837); (*Chrysophanus* D.) Dbldy.-Hew., Gen. Diur. Lep., 498, (1850-1852); (*Lyc.* D.) Kirby, Cat., p. 343, (1871); (*Polyom.* D.) Morris, Syn., p. 90, (1862); (*Epidemia* D.) Seud., Buff. Bull., III, p. 128, (1876).

- ‡161. MARIPOSA, REAK., (*Polyom.* M.), Proc. Ent. Soc., Phil., VI, p. 149, foot-note, (1866); (*Lyc.* M.) Kirby, Cat., p. 342, (1871); Streck., Lep., Rhop.-Het., p. 91, t. X, (1874); (*Epidemia* M.) Seud., Buff. Bull., III, p. 127, (1876). California.

Polyommatus Nivalis, Bdl., Lep. Cal., p. 44, (1869).

162. HELLOIDES, BDL., (*Polyommatus H.*) Ann. Soc. Ent., California, Fr., 2me Ser. X, p. 292, (1852); Morris, Syn., p. 86, (1862); (*Lyc. H.*) Kirby, Cat., p. 342, (1871); Oregon, Colorado, etc. Streck., Lep., Rhop.-Het., p. 91, t. X, (1874); (*Chrysophanus H.*) Mead, Wheeler's Rep., V, p. 780, (1875); (*Epidemia H.*) Scud., Buff. Bull., III, p. 128, (1876).
- †*Polyommatus Castro*, Reak., Proc. Ent. Soc., Phil., VI, p. 148, (1866); (*Lycena C.*) Kirby, Cat., p. 342, (1871); (*Chrysophanus C.*) Mead, Wheeler's Rep., V, p. 781, (1875).
163. ZEROE, BDL., (*Polyommatus Z.*), Lep. Cal., p. 45, (1869); California, (*Epidemia Z.*) Scud., Buff. Bull., III, p. 127, (1876). Colorado, *Chrysophanus Ianthe*, W. H. Edwds., Trans. Am. Ent. Nevada, etc. Soc., III, p. 211, (1871); (*Lyc. I.*) Streck., Lep., Rhop.-Het., p. 91, t. X, (1874); (*Chrysophanus I.*) Mead, Wheeler's Rep., V, p. 781, (1875).
164. XANTHOIDES, BDL., (*Polyom. X.*), Ann. Soc. Ent., Fr., California, 2me Ser. X, p. 292, (1852); Lep. Cal., p. 45, (1869); Morris, Syn., p. 86, (1862); (*Lyc. X.*) Kirby, Cat., p. 343, (1871); Streck., Lep., Rhop.-Het., p. 92, t. X, (1874); (*Gaeides X.*) Scud., Buff. Bull., III, p. 126, (1876).
"Food-plant: *Hemizonia*."
- var. a. DIONE, SCUD., (*Chrysophanus D.*), Proc. Bost. Wisconsin, Soc. Nat. Hist., XI, p. 401, (1868); Trans. Chicago Iowa, Acad. Sc., I, p. 330, (1869); (*Lyc. D.*) Kirby, Cat., Missouri, Kansas, p. 343, (1871); Streck., Lep., Rhop.-Het., p. 92, (1874); (*Gaeides D.*) Scud., Buff. Bull., III, p. 126, (1876).
Differs in ♀ being uniformly same colour above as the ♂.
165. GORGON, BDL., (*Polyom. G.*), Ann. Soc. Ent., Fr., 2me Ser. X, p. 292, (1852); Morris, Syn., p. 86, (1862); (*Lyc. G.*) Kirby, Cat., p. 343, (1871); Streck., Lep., Rhop.-Het., p. 90, t. X, ♂, (1874); (*Gaeides G.*) Scud., Buff. Bull., III, p. 126, (1876).
- *†166. HERMES, W. H. EDWDS., (*Chrysophanus H.*), Trans. California, Am. Ent. Soc., III, p. 21, (1870); (*Lyc. H.*) Kirby, Cat., p. 345, (1871); Streck., Lep., Rhop.-Het., p. 91, (1874); (*Tharsalia H.*) Scud., Buff. Bull., III, p. 125, (1876).
167. AROTA, BDL., (*Polyom. A.*) Ann. Soc. Ent., Fr., 2me California, Ser. X, p. 293, (1852); Morris, Syn., p. 86, (1862); (*Lyc. A.*) Kirby, Cat., p. 343, (1871); Streck., Lep., Rhop.-Het., p. 91, t. X, (1874); (*Tharsalia A.*) Scud., Buff. Bull., III, p. 125, (1876).
168. VIRGINIENSIS, W. H. EDWDS., (*Chrysophanus V.*), Nevada and Trans. Am. Ent. Soc., III, p. 21, (1870); (*Lyc. V.*) adjoining Kirby, Cat., p. 345, (1871); Streck., Lep., Rhop.-territory. Het., p. 91, t. X, (1874); (*Tharsalia V.*) Scud., Buff. Bull., III, p. 125, (1876).

In Kirby's Catalogue are cited the following apocryphal species :
 On p. 376, No. 306, "Cupido Clara, Edw. (*Lyc. C.*) Trans. Amer. Ent. Soc. 1870. California." On p. 653, No. 42, "L. Nais, Edw. (*Chrys. N.*) Trans. Amer. Ent. Soc. 1871. Unio Amer." No. 326, "Plebeius Embla, Edw. (*Lyc. E.*) Trans. Amer. Ent. Soc. 1870. California." No. 328, "Plebeius Eunomia, Edw. (*Lyc. E.*) Trans. Amer. Ent. Soc. 1870. California."

These four have no existence in nature nor are their descriptions to be found in the work referred to. Mr. Scudder says "These names were sent to Mr. Kirby as about to be published, and by accident were never cancelled." Buff. Bull., III, p. 124.

GENUS 3. FENISECA. GROTE.

169. TARQUINIUS, FABR., (*Hesperia T.*), Ent. Syst., III, 1, p. 319, (1793); (*Pap. T.*) Don., Ins. Ind., t. 44, (1800); Herbst, Natursyst. Ins. Schmett., XI, p. 376, (1804); (*Erycina T.*) Godt., Enc. Meth., IX, p. 580, (1819); (*Chrysophanus T.*) Dbldy.—Hew., Gen. Diur. Lep., p. 499, t. 77, (1850–1852); (*Fenisecca T.*) Grote, Trans. Am. Ent. Soc., II, p. 307, (1869); (? *Lyc. T.*) Kirby, Cat., p. 345, (1871); (*Fenisecca T.*) Scud., Buff. Bull., III, p. 129, (1876).
Polyommatus Crategi, Bdl.—Lee., Lep. Am. Sept., p. 128, t. 37, (1833); Morris, Syn., p. 85, (1862).
Polyommatus Porsenna, Scud., Proc. Essex Ins., III, p. 163, (1862); (? *Lyc. P.*) Kirby, Cat., p. 345, (1871).
 Larva on *Alnus*, *Vaccinium*, *Viburnum*.

GENUS 4. EUMÆUS, HUB.

170. ATALA, POEY, (*Eumenia A.*) Cent. Lep. Cuba, t. 2, (1832); Florida, Guerin, Icon. Reg. An. Ins. texte, p. 489, (1844); Cuba, (*Eumæus A.*) Dbldy.—Hew., Gen. Diur. Lep., t. 74, (1850–1852); Kirby, Cat., p. 426, (1871); Scud., Buff. Bull., III, p. 103, (1876).
Eumenea Toxica, Gray, Griff. An. King., XV, t. 43, (1832); Guerin, Icon. Reg. An. Ins., t. 80, (1844).
 Larva on *Zamia Pumila*.
171. MINYAS, HUB., (*Rusticus Adollescens M.*), Sam. Ex. S. W. Texas, Schmett., I, (1806–1816); (*Eumæus M.*) Verz. Mexico, Bek. Schmett., p. 67, (1816); Kirby, Cat., p. 426, (1871).
Eumenia Minijas, Bdl., Sp. Gen., I, t. 21, (1836); Cuv., Reg. An. Ins., II, t. 141, (1836); (*Eumæus M.*) Scud., Buff. Bull., III, p. 103, (1876).
Eumenia Toxica, Godt., Enc. Meth., IX, p. 826, (1823); Luc., Lep. Ex., t. 79, (1835).

FAMILY IV. ERYCINIDÆ.

GENUS 1. APODEMIA, FELD.

172. MORMO, FELD., (*Lemonias M.*), Wien. Ent. Mon., III, Utah, Nevada, Arizona, p. 271, (1859); (*Apod. M.*) Reise Nov. Lep. II, p. 302, t. 37, (1865); (*Lemonias M.*) Morris, Syn., p. 104, (1862); (*Apod. M.*) Kirby, Cat., p. 324, (1871); Mexico. (*Chrysobia M.*) Scud., Buff. Bull., III, p. 103, (1876).
- Nemeobius Dumeti*, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 178, (1865); (*Lemonias D.*) Mead, Wheeler's Rep., V, p. 786, (1875).
- Chrysobia Mormonia*, Bdl., Lep. Cal., p. 52, (1869).
- var. a. VIRGULTI, BEHR, (*Nemeobius V.*), Proc. Cal. S. California, Acad. Nat. Sc., III, p. 178, (1865); (*Apodemia V.*) Kirby, Cat., p. 324, (1871); (*Chrysobia V.*) Scud., Buff. Bull., III, p. 102, (1876).
- Apodemia Sonorensis*, Feld., Reise Nov. Lep., II, p. 303, (1865).
- Lemonias Cythera*, W. H. Edwards., Trans. Am. Ent. Soc., IV, p. 345, (1873); Mead, Wheeler's Rep., V, p. 786, t. XXXVI, ♂, (1875); (*Chrysobia C.*) Scud., Buff. Bull., III, p. 103, (1876).

This form is a little smaller and differs further in that the median row of spots on upper surface of secondaries is confluent, forming a band, the inner edge of which is very irregular, having a deep sinus opposite the middle cell; this band is fulvous, edged more or less with white on its inner margin.

GENUS 2. LEMONIAS, WEST.

173. PALMERII, W. H. EDWARDS., Trans. Am. Ent. Soc., III, Utah, p. 195, (1870); Kirby, Cat., p. 652, (1871); (*Chrysobia P.*) Scud., Buff. Bull., III, p. 103, (1876).

GENUS 3. CHARIS, HUB.

174. CÆNEUS, LINN., (*Pap. C.*), Syst. Nat., Ed. XII, I, 2, Southern States from Virginia to Texas, p. 796, (1767); (*Charis C.*) Kirby, Cat., p. 319, (1871); (*Calophelis C.*) Scud., Buff. Bull., III, p. 102, (1876).
- Polystichtis Cereæ*, Hüb., Verz. Bek. Schmett., p. 18, (1816).
- Erycina Virginicensis*, Bdl., Griff., Conv. An. King., XV, t. 58, (1832); Guer., Icon. Reg. An. Ins., p. 489, t. 81, (1844).
- Nymphidia Pumila*, Bdl.—Lec., Lep. Am. Sept., p. 131, t. 37, (1833); Morris, Syn., p. 104, (1862); (*Calophelis P.*) Grote, Can. Ent., V, p. 144, (1873).
- Charis Cereus*, Dbldy., List Lep. B. M., II, p. 16, (1847).

Charis Cænius, G.-R., Trans. Am. Ent. Soc., II, p. 310, (1869).

175. BOREALIS, G.-R., (*Nymphidia B.*), Ann. N. Y. Lye. Nat. Hist., VIII, p. 351, (1866); (*Charis B.*) Trans. Am. Ent. Soc., II, p. 310, (1869); (*Charis B.*) Kirby, Cat., p. 319, (1871); (*Calephelis B.*) Grote, Can. Ent., V, p. 144, (1873); Seud., Buff. Bull., III, p. 102, (1876). Middle and Western States from N. York to Illinois.
- †*176. NEMESIS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 212, (1871); (*Calephelis N.*) Seud., Buff. Bull., III, p. 102, (1876). Arizona.

FAMILY V. LIBYTHEIDÆ.

GENUS 1. LIBYTHERA, FABR.

177. BACHMANI, KIRTLAND, Sill. Jnl. Sc., 2, Ed. XIII, p. 336, (1852); Morris, Syn., p. 63, (1862); Saund., Can. Ent., I, p. 25, f. 1, (1868); W. H. Edwds., Butt. N. Am., II, t. I, Liby., (1874). Canada, U.S. from Atlantic to Texas and Kansas inclusive; rare north, commoner south.
- Hypatus Bachmanii*, Seud., Buff. Bull., II, p. 269, (1875).
- Lib. Motya* var. *a. Bachmani*, Kirby, Cat., p. 283, (1871).
- Larva on *Celtis Occidentalis*.
178. CARINENTA, CRAM., (*Pap. C.*), Pap. Exot., II, t. 108, (1779); (*Lib. C.*) Godt., Enc. Meth., IX, p. 170, (1819); Mead, Wheeler's Rep., V, p. 772, (1875); (*Hypatus C.*) Seud., Buff. Bull., II, p. 269, (1875). Arizona, N. Mex., Mex., Cent. Am., Surinam.

FAMILY VI. DANAIDÆ.

GENUS 1. DANAIS, LATR.

179. PLEXIPPUS, LINN., (*Pap. P.*), Syst. Nat., Ed. X, p. 471, (1758); Mus. Lud. Ulr., p. 262, (1764); Cram., Pap. Ex., III, t. 206, E, F, (1782); DeBeauv., Ins. Afr. et Am., p. 172, t. IV, f. 1 a, 1 b, (1805); (*Danaida P.*) Latr., Hist. Nat. Crust. et Ins., XIV, p. 108, (1805); (*Danaus P.*) Latr., Gen. Crust. et Ins., IV, p. 200, (1809); (*Idea P.*) Esch., Kotzeb. Reise, III, p. 209, t. 7, (1821); (*Danaus P.*) Say, Am. Ent., III, t. 54, (1828); Peale, Lep. Am., I, t. 7, (1833); (*Danaidu P.*) Seud., Buff. Bull., II, p. 245, (1875). Canada; U. S. and Territories from Atlantic to Pacific; Antilles; Mex.; Cent. Am.; N. Granada; Venezuela; Guiana; Australia.
- Papilio Eriippus*, Cram., Pap. Ex., I, t. 3, A, B, (1779); (*Danais E.*) Kirby, Cat., p. 7, (1871).
- Papilio Archippus*, Fabr., Ent. Syst., III, 1, p. 49, (1793); Abb.-Sm., Ins. Ga., I, t. 6, (1797); Brown, Const. Mis. Butt., I, p. 156, t. 23, (1832); (*Danais A.*) Bdl.-Lec., Lep. Am. Sept., p. 137, t. 40, (1833); Morris, Syn., p. 38, (1862); Harris, Ins. Inj. Veg.,

Flint's Ed., p. 280, (1862); Saunders, Can. Ent., V, pp. 4-8, f. 1-5, (1873); W. H. Edwds., l. c., p. 9, (1873); Mead, Wheeler's Rep., V, p. 750, (1875).
Danaüs Archippe, Godt., Enc. Meth., IX, p. 184, (1819).

Anosia Megalippe, Hüb., Sam. Exot. Schmiett., II, (1806-1824).

Anosia Menippe, Hüb., Verz. Bek. Schmiett., p. 16, (1816).

———, *Petiver*, Mus., 52, n. 527, (1696-1703).

———, *Catesby*, Nat. Hist. Car., II, p. 88, t. 88, (1743).

var. a.—Generally smaller. Ground colour dull, much suffused with black, especially on primaries.

Tab. b. ♂—Black marginal band destitute of all white spots; the white spots of subapical band minute, almost obsolete. Mus. Streck.

var. c.—Not bright; more the colour of *Berenice*, but not so dark.

Tab. d. ♂—Ground colour on both surfaces of right hand primary pure white. Analogous examples of this partial albinism are not unfrequent among the copper Lycaenidae. Mus. Streck.

Larva on various species of milkweed (*Asclepias*); also on bitter root (*Apocynum Androsaemifolium*).

Catesby's figure, which is cited by Linn. in the Syst. Nat., Ed. X, and other editions, also in Mus. Lud. Utr., is, though crude, a fair representation in form and colour, and is the earliest reliable figure I have been able to examine of our species. Under *Plexippus* Linn. also cites fig. 5, 6, t. 239, in Sloane's Jamaica. These figures, however, do not represent this species at all, but the upper and under surfaces of *D. Berenice*.

I have strong doubts if Cramer's *Eriippus*, fig. A, B, t. 3, in Vol. I, Pap. Ex., represents our species at all, but think it more likely to have been meant for the allied Brazilian *Plexaure*, Godt., at least to judge by the white which accompanies the venation of under side of secondaries.

Perhaps one of the most remarkable occurrences in connection with this, the commonest of all our N. Am. butterflies, is that within the last few years it has appeared in great numbers in Australia, and bids fair to be, if not already, as plentiful there as with us. It is worthy of some thought, "not that it is curious or rare, but how the devil it got there;" possibly and probably the chrysalis or larva, or even the perfect insect, through commerce was carried from San Francisco to some not very distant point in the Pacific, and in due time from thence further, and so on.

180. BERENICE, CRAM., (*Pap. B.*), Pap. Exot., III, t. 205, E, F, (1782); (*Danaüs B.*) Bdl.-Lec., Lep. Am. Sept., p. 134, t. 39, (1833); Morris, Syn., p. 37, (1862); Mead, Wheeler's Rep., V, p. 750, (1875); (*Anosia B.*) Scud., Buff. Bull., II, p. 246, (1875).

Pap. Eriippus, Fabr., (nec Cram.), Mant. Ins., II, p. 27, (1787).

Anosia Eriippe, Hüb., Verz. Bek. Schmiett., p. 16, (1816); (*Danaüs E.*) Godt., Enc. Meth., IX, p. 186, (1819).

Apalachicola, Florida.
 Baltimore, Md.

S. Carolina,
 Georgia, the
 Gulf States;
 W. Indies,
 Mexico.

Papilio Gilippus, Abb.-Smith, (nec Cram., t. 26, f. C, D),
Ins. Ga., I, t. 7, (1797); (*Danaïs G.*) Kirby, Cat.,
p. 7, (1871).

———, Sloane, Jamaica, II, p. 214, n. VIII,
t. 239, f. 5, 6, (1725).

Larva on milkweed (*Asclepias*).

var. a. STRIGOSA, BATES, Ent. Mon. Mag., I, p. 32, Texas; Mex-
(1864); (*Anosia S.*) Scud., Buff. Bull., II, p. 246, ico; Cent.
(1875). Am.

Dan. Gilippus var. *Strigosa*, Kirby, Cat., p. 7, (1871).

Differs only in that on upper surface of secondaries the veins
as far as to the black margin are narrowly edged with ob-
scure whitish grey.

Vinctoiciæ, (*Limnas ferruginea* et *Anosia*), of Hubner is not our
species, but the *Gilippus* of Cram., a S. Am. insect paler in
colour and with more white spots.

GENUS 2. CERATINIA, FABR.

181. LYCASTE, FABR., (*Pap. L.*), Ent. Syst., III, 1, p. 161, Los Angeles,
(1793); (*Ceratinia L.*) Reak., Proc. Ent. Soc., Phil., California.
V, p. 218-219, (1865); (*Dynothea L.*) l. c., p. 222;
(*Ithomia L.*) Kirby, Cat., p. 26, (1871); (*Dynothea*
L.) Scud., Buff. Bull., II, p. 246, (1875).

†var. a. NEGRËTA, REAK., Proc. Ent. Soc., Phil., V, p. 220,
(1865); (*Ithomia N.*) Kirby, Cat., p. 26, (1871);
(*Dynothea N.*) Scud., Buff. Bull., II, p. 247, (1875).

Differs principally from the type form in the presence of a
black spot in end of cell of secondaries.

This var. is close to var. *Panamensis*, Bates, but differs from it
in the presence of the black in middle cell of secondaries and
in the absence of the three white submarginal spots on same.

GENUS 3. MECHANITIS, FABR.

†182. CALIFORNICA, REAK., Proc. Ent. Soc., Phil., V, p. 223, Los Angeles,
(1865); Kirby, Cat., p. 24, (1871); Scud., Buff. California.
Bull., II, p. 247, (1875).

FAMILY VII. HELICONIDÆ.

GENUS 1. HELICONIUS, LATR.

183. CHARITHONIA, LINN., (*Pap. C.*), Syst. Nat., Ed. XII, Florida,
2, p. 757, (1767); (*Hel. C.*) Kirby, Cat., p. 141, West Indies.
(1871).

Pap. Charitonia, Fabr., Syst. Ent., p. 462, (1775);
Cram., Pap. Ex., II, t. 191, (1779); (*Apostrophia*
C.) Hüb., Verz. Bek. Schmett., p. 13, (1816);
(*Heliconia C.*) Godt., Enc. Meth., IX, p. 210,
(1819); Bdl.-Lec., Lep. Am. Sept., p. 140, t. 41,
(1833); Lucas, Pap. Ex., p. 95, t. 50, (1835);
Morris, Syn., p. 39, (1862); (*Apostrophia C.*) Scud.,
Buff. Bull., II, p. 247, (1875).

———, Sloane, Hist. Jamaica, II, t. 239, f.
15, 16, (1725).

FAMILY VIII. NYMPHALIDÆ.

GENUS 1. COLÆNIS, HUB.

184. JULIA, FABR., (*Pap. J.*), Syst. Ent., p. 509, (1775); Texas, Mexico, Cent. Am., Brazil.
 (*Dryas phalerata J.*) Hüb., Sam. Ex. Schmett.,
 (1806–1816); (*Colænis J.*) Verz. Bek. Schmett.,
 p. 32, (1816); (*Cethosia J.*) Godt., Enc. Meth., IX,
 p. 244, (1819); Lucas, p. 102, t. 53, (1835); (*Co-*
lænis J.) Kirby, Cat., p. 147, (1871); Scud., Buff.
 Bull., II, p. 257, (1875).
Pap. Alcionea, Cram., Pap. Ex., III, t. 215, f. A, F,
 G, (1782).
Pap. Alcyonea, Herbst, Natursyst. Schmett., t. 67,
 (1783–1804).
 —————, *Seba*, Thes., IV, t. 4, f. 19, 20, (1765). Texas, Mexico, Cuba,
 185. DELILA, FABR., (*Pap. D.*), Syst. Ent., p. 510, (1775); Cent. Am.,
 (*Colænis D.*) Hüb., Verz. Bek. Schmett., p. 32, Surinam.
 (1816); (*Cethosia D.*) Godt., Enc. Meth., IX, p.
 244, (1819); (*Colænis D.*) Kirby, Cat., p. 147,
 (1871); Scud., Buff. Bull., II, p. 257, (1875).
Pap. Cillene, Cram., Pap. Ex., III, t. 215, f. D, E,
 (1782).
 —————, *Sloane*, Hist. Jamaica, II, t. 239, f.
 21, 22, (1725).

GENUS 2. AGRAULIS, BDL.-LEC.

186. VANILLÆ, LINN., (*Pap. V.*), Syst. Nat., Ed. X, p. 482, United
 (1758); Mus. Lud. Ulr., p. 306, (1764); Syst. Nat., States from
 Ed. XII, I, 2, p. 787, (1767); Clereke, Icones, t. Virginia
 40, (1764); Sulzer, Abg. Gesch., t. 18, (1776); southward,
 Cram., Pap. Ex., III, t. 212, (1782); Fabr., and from the
 Mant. Ins., II, p. 64, (1787); Stoll., Suppl., t. 1, f. Atlantic to
 7 A, 7 B, Lar. et Pup., (1787–1791); Herbst, the Pacific;
 Natursyst., t. 254, (1783–1804); DeBeauv., Ins. Afr. Antilles;
 et Am., p. 208, t. 11 c, f. 2 a, 2 b, (1805); Mexico;
 (*Dryas Phalerata V.*) Hüb., Sam. Ex. Schmett., I, (1806); Cent. Am.;
 (*Dione V.*) Hüb., Verz. Bek. Schmett., p. 31, (1816); N. Granada;
 (*Argynnis V.*) Godt., Enc. Meth., IX, p. 262, Venezuela;
 (1819); Bdl.-Lec., Lep. Am. Sept., p. 143, t. 42, Guiana; Bra-
 (1833); (*Agraulis V.*) Morris, Syn., p. 40, (1862); zil; Bolivia.
 Kirby, Cat., p. 148, (1871); Hy. Edwds., Proc.
 Cal. Acad. Nat. Sc., Lar., (July, 1874); Scud.,
 Buff. Bull., II, p. 255, (1875).
Pap. Passafloræ, Fabr., Ent. Syst., III, 1, p. 60,
 (1793); Abb.-Sm., Ins. Ga., I, t. 12, (1797).
 —————, *Merian*, Ins. Sur., 25, (1719).
 —————, *Sloane*, Hist. Jamaica, II, t. 239, f.
 23, 24, (1725).
 ab. a.—Ground colour of upper surface olivaceous instead of red.
 Larva on blue and scarlet passion flower (*Passaflora*
Cerulea et *Incarnata*).

GENUS 3. EUPTOIETA, DBLDY.

187. CLAUDIA, CRAM., (*Pap. C.*), *Pap. Ex.*, I, t. 69, f. E, F, U. S. from (1779); (*Dryas fucata C.*) Hüb., *Samml. Ex. Penna.*
Schmett., I, (1806–1816); (*Brenthis C.*) Verz. *Bek. southward*
Schmett., p. 30, (1816); (*Argynnis C.*) Dbldy., and from the
List Lep. B. M., I, p. 67, (1844); Dbldy.—Hew., Atlantic to
Gen. Diur. Lep., p. 170, (1850–1852); Chenu, *Pap. the Rocky*
Diur., f. 192, (1851–1857); (*Eup. C.*) Reak., *Proc. Mts.; Ari-*
Ent. Soc., Phil., VI, p. 136, (1866); W. H. Edwds., *zona; New*
Can. Ent., II, p. 163, (1870); Kirby, *Cat.*, p. 154, *Mexico.*
(1871); Mead, *Wheeler's Rep.*, V, p. 750, (1875);
Scud., *Buff. Bull.*, II, p. 258, (1875).
Pap. Clausius, Herbst, Natursyst. Ins., IX, p. 189, t.
257, (1798).
Argynnis Columbina, Godt., (nec Fabr.), Enc. Meth.,
IX, p. 260, (1819); Bdl.—Lec., *Lep. Am. Sept.*, p.
153, t. 44, (1833); Morris, *Syn.*, p. 44, (1862).
Larva on violets, *Podophyllum, Sedum, Passiflora,*
? Portulacca.
188. HEGESIA, CRAM., (*Pap. H.*), *Pap. Ex.*, III, t. 209, E, S. California,
F, (1782); (*Eup. H.*), Kirby, *Cat.*, p. 154, (1871). *Mexico, W.*
Pap. Columbina, Fabr., Ent. Syst., III, 1, p. 148, *Indies, Cent.*
(1793); (*Arg. C.*) Godt., *Enc. Meth.*, IX, p. 260, *Am., Chili.*
(1819).
Pap. Daunius, Herbst, Natursyst. Schmett., IX, p.
184, t. 256, (1798).
Argynnis Hortensia, Blanch., Gay, Faun. Chil., VII,
p. 23, (1852); Kirby, *Cat.*, p. 159, (1871).

GENUS 4. ARGYNNIS, FABR.

189. DIANA, CRAM., (*Pap. D.*), *Pap. Ex.*, II, t. 98, D, E, ♂, W. Virginia,
(1779); Fabr., *Sp. Ins.*, p. 110, ♂, (1781); Ent. *Georgia,*
Syst., III, p. 145, (1793); (*Arg. D.*) Godt., *Enc. Kentucky,*
Meth., IX, p. 257, (1819); Say, *Am. Ent.*, I, t. 17, *Tennessee,*
♂, (1824); Herbst, *Natursyst. Schmett.*, IX, p. 169, *Arkansas.*
t. 253, (1798); Bdl.—Lec., *Lep. Am. Sept.*, p. 149,
(1833); Morris, *Syn.*, p. 42, ♂, (1862); W. H.
Edwds., *Proc. Ent. Soc., Phil.*, III, p. 431, ♀,
(1864); Butt., *N. Am.*, I, t. 1, Arg., ♂♀, (1868);
l. c., II, t. VII, Arg. Ov. Lar. et Pup., (1876);
Can. Ent., VI, p. 121, (1874); Feld., *Reise Nov.*
Lep., III, p. 394, t. 50, (1867); Kirby, *Cat.*, p. 155,
(1871); (*Semnopsyche D.*) Scud., *Buff. Bull.*, II, p.
258, (1875).
Larva on the various species of violets, both wild
and cultivated.
190. IDALIA, DRU., (*Pap. I.*), *Ill. Ex. Ent.*, I, t. 13, (1773); U. S. from
Cram., *Pap. Ex.*, I, t. 44, (1779); Fabr., *Syst. Ent.*, *Mass. to Wis.*
p. 516, (1775); Ent. *Syst.*, III, p. 145, (1793); *Arkansas &*
Louisiana.

Herbst, *Natursyst. Schmett.*, IX, t. 252, (1798); (*Acidalia I.*) Hüb., *Verz. Bek. Schmett.*, p. 31, (1816); (*Arg. I.*) Godt., *Enc. Meth.*, IX, p. 263, (1819); Bdl.-Lec., *Lep. Am. Sept.*, p. 147, t. 43, (1833); Lucas, *Pap. Ex.*, p. 108, t. 56, (1835); Morris, *Syn.*, p. 41, (1862); Harris, *Ins. Inj. Veg.*, Flint's Ed., p. 285, f. 110, (1862); Kirby, *Cat.*, p. 156, (1871); (*Speyeria I.*) Scud., *Buff. Bull.*, II, p. 258, (1875); (*Pap. I.*) Brown, *Constable's Mis.*, III, Butt., p. 40, t. 2, (1834).

ab. a. ♀ ASHTAROTH, FISHER, *Proc. Acad. Nat. Sc.*, Phil., p. 352, (1852); Morris, *Syn.*, p. 47, (1862); Kirby, *Cat.*, p. 157, (1871). Schooley's Mountain, N. Jersey.

Arg. Astarte, Fisher, *Proc. Acad. Nat. Sc.*, Phil., p. 179, t. 2, (1858); (*Speyeria A.*) Scud., *Buff. Bull.*, II, p. 258, (1875).

Above the spots and marks of primaries suffused and confluent, forming heavy black streaks between the veins and connecting with the black outer margin. Secondaries destitute of the two rows of white spots. Beneath primaries marked as above and with the black streaks in the cells heavily suffused with silver. Secondaries with the basal half silver and the outer half dark brown with blackish streaks between the veins; five submarginal silver spots, two only at all conspicuous, the others merely a few scales. Mus. Streck.

Fisher changed the name *Astarte*, under which it was originally described, to *Ashtaroth*, owing to the former being pre-occupied by a species in Dbldy.-Hew., *Dinr. Lep.*, t. 23, f. 5.

Larval food is, probably, in common with that of the other species, various kinds of violets.

‡191. EDWARDSII, REAK., *Proc. Ent. Soc.*, Phil., VI, p. 137, (1866); W. H. Edwds., *Butt. N. Am.*, I, t. 11, *Arg.*, (1869); Kirby, *Cat.*, p. 160, (1871); Scud., *Buff. Bull.*, II, p. 260, (1875); Mead, *Wheeler's Rep.*, V, p. 754, (1875). Colorado.

Arg. Aglaia, W. H. Edwds., *Proc. Ent. Soc.*, Phil., II, p. 504, (1864).

var. a. NEVADENSIS, W. H. EDWDS., *Trans. Am. Ent. Soc.*, III, p. 14, (1870); *Butt. N. Am.*, I, t. 14, *Arg.*, (1871); Kirby, *Cat.*, p. 647, (1871); Scud., *Buff. Bull.*, II, p. 260, (1875). Montana, Nevada, Utah, California.

Wings somewhat broader. Under surface of secondaries in ♀ not greenish; generally with the space between the two outer rows of silver spots pale buff colour in both sexes.

var. b. MEADII, W. H. EDWDS., *Trans. Am. Ent. Soc.*, IV, p. 67, (1872); *Butt. N. Am.*, II, t. 2, *Arg.*, (1875); Scud., *Buff. Bull.*, II, p. 260, (1875); Mead, *Wheeler's Rep.*, V, p. 755, (1875). Colorado, Montana.

Smaller. Green of under side of secondaries brighter.

192. NOKOMIS, W. H. EDWDS., *Proc. Acad. Nat. Sc.*, Phil., p. 221, (1862); *Butt. N. Am.*, I, t. 4, *Arg.*, (1868); Reak., *Proc. Ent. Soc.*, Phil., VI, p. 136, (1866); Kirby, *Cat.*, p. 157, (1871); Scud., *Buff. Bull.*, II, p. 259, (1875); Mead, *Wheeler's Rep.*, V, p. 751, t. 35, (1875). Arizona.

193. CYBELE, FABR., (*Pap. C.*), Syst. Ent., p. 516, (1775); Canada, U.S. Ent. Syst., III, p. 145, (1793); Herbst, *Natursyst.* from Maine Schmett., IX, p. 178, t. 255, (1798); (*Acidalia C.*) to Virginia Hüb., *Verz. Bek.* Schmett., p. 31, (1816); (*Arg. C.*) and west- Godt., *Enc. Meth.*, IX, p. 260, (1819); Bdl.-Lec., ward to Lep. Am. Sept., p. 151, t. 45, (1833); Kirby, *Faun.* Kansas. Am. Bor., IV, p. 289, (1837); Morris, *Syn.*, p. 42, (1862); W. H. Edwds., *Butt. N. Am.*, I, t. 2, Arg., (1868); Can. Ent., VI, p. 121, (1874); Kirby, Cat., p. 157, (1871); Saunders, *Can. Ent.*, IV, p. 121, Lar., (1872); Scud., *Buff. Bull.*, II, p. 259, (1875).

Arg. Daphnis, Cram., (*Pap. D.*), *Pap. Ex.*, I, t. 57, (1779).

Larva on violets.

- ‡ab. a. ♂ BAAL, SOB.—Upper surface primaries, submarginal Ohio. lunules confluent with the row of round black spots interior to them. Secondaries, submarginal line wanting, submarginal lunules connected and suffused, forming an irregular jagged line; the row of spots interior to this almost obsolete, other marks suffused. Under surface primaries, all black marks increased and more or less confluent. Secondaries, over one-third of wing (basal part) silver, rest reddish brown, paler towards exterior margin; an irregular, rather broad, submarginal band formed of confluent silver lunules and spots. Mus. Streck.

- var. b. LETO, BEHR, *Proc. Cal. Acad. Nat. Sc.*, II, p. Oregon, Cal- 173, (1858–1862); W. H. Edwds., *Proc. Ent. Soc.*, ifornia. Phil., p. 434, (1864); *Butt. N. Am.*, I, t. X, Arg., (1869); Kirby, Cat., p. 157, (1871); Streck., *Lep.*, Rhop.-Het., p. 106, (1875); Scud., *Buff. Bull.*, II, p. 259, (1875).

Arg. Cybele, Bdl., *Lep. Cal.*, p. 60, (1869).

Upper surface, ground colour of ♂ same red as the normal form or a little darker, of ♀ pale yellow or yellowish white, which colour is however confined mainly to the outer third of wings, the basal and discal parts being black or blackish brown. ♂ ♀ with silver spots of under side of secondaries very small.

- †*194. NITOCRIS, W. H. EDWDS., *Trans. Am. Ent. Soc.*, V, p. Arizona. 15, (1874); Mead, *Wheeler's Rep.*, V, p. 751, (1875); Scud., *Buff. Bull.*, II, p. 259, (1875).
- †*195. CARPENTERII, W. H. EDWDS., *Trans. Am. Ent. Soc.*, V, p. 204, (1876).

196. APHRODITE, FABR., (*Pap. A.*), *Mant. Ins.*, II, p. 62, Canada, U.S. (1787); Ent. Syst., III, 1, p. 144, (1793); (*Arg. A.*) from Maine Godt., *Enc. Meth.*, IX, p. 264, (1819); Morris, to Virginia *Syn.*, p. 43, (1862); Harris, *Ins. Inj. Veg.*, Flint's and west- Ed., p. 285, 286, f. 111, (1862); W. H. Edwds., ward to Col- *Butt. N. Am.*, t. 3, Arg., (1868); Pack., *Guide*, p. orado. 253, f. 183, (1869); Kirby, Cat., p. 157, (1871); Can. Ent., VI, p. 121, Lar., (1874); Mead, *Wheeler's Rep.*, V, p. 752, (1875); Scud., *Buff. Bull.*, II, p. 259, (1875).

Pap. Daphnis, Martyn, Psyche, t. 3, f. 7, t. 4, f. 9, (1797).

Larva on violets.

var. a. ALCESTIS, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 289, (1876).

♂, ground colour under surface all wings uniform cinnamon brown, seldom much indication of the buff space between the last row of silver spots and the submarginal lunules. ♀, ground colour under side secondaries uniform very dark ferruginous.

ab. b. ♀.—Whole upper surface obscured with blackish brown; no defined marks visible save one in cell of primaries. Under surface primaries, all black marks very much enlarged, in many parts confluent. Secondaries with very dark ground colour, silver spots as in usual form.

†*197. HALCYONE, W. H. EDWDS., Butt. N. Am., I, t. 9, Arg., (1868); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 260, (1875); Mead, Wheeler's Rep., V, p. 754, (1875). Colorado.

From Mr. Edwds.' figure should suppose this to be the same as *Aphrodite*.

198. ATLANTIS, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 54, (1862); Butt. N. Am., I, t. 5, Arg., (1869); Can. Ent., IX, p. 35, (1877); Pack., Guide, p. 252, (1869); Kirby, Cat., p. 158, (1871); Mead, Wheeler's Rep., V, p. 754, (1875); Scud., Buff. Bull., II, p. 260, (1875). S. Labrador, Can., Lake Sup. Region, N. E. States, N. Y., Pa., west'n States to Roc'y Mts. Arizona.

Larva on violets.

†*199. NAUSICA, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 104, (1874); Mead, Wheeler's Rep., V, p. 752, (1875).

†*200. COLUMBIA, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1877). British Columbia.

†*201. LILIANA, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1876). California.

202. CORONIS, BEHR, Proc. Cal. Acad. Nat. Sc., II, p. 173, n. 2, (1858-1862); W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 435, (1864); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 260, (1875). California.

Arg. Juba, Bdl., Lep. Cal., p. 60, (1869).

203. CALLIPPE, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 302, (1852); Morris, Syn., p. 46, (1862); Behr, Proc. Cal. Acad. Nat. Sc., II, p. 172, n. 1, (1858-1862); W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 434, (1864); Butt. N. Am., I, t. 6, Arg., (1868); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 260, (1875). California.

204. BREMNERII, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 63, (1872); Butt. N. Am., II, t. 4, Arg., (1874); Scud., Buff. Bull., II, p. 260, (1875). Vancouver's Is., Wash. Ty., Oregon.

205. MONTICOLA, BEHR, Proc. Cal. Acad. Nat. Sc., II, p. 175, (1858-1862), l. c., III, p. 84, (1863); W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 436, (1864); California, Oregon.

Butt. N. Am., I, t. 8, Arg., (1868); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 261, (1875).
Arg. Zerene, Bdl., Ann. Soc. Ent., Fr., 2me Ser. X, p. 303, (1852); (*Melitæa* Z.) Morris, Syn., p. 53, (1862).

var. a. RHODOPE, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 15, (1874); Butt. N. Am., II, t. 6, Arg., (1874); Scud., Buff. Bull., II, p. 260, (1875). Brit. Col., Oregon, California.

Differs in the under surface of secondaries being darker coloured; sometimes obscured with blackish on disc between the second and third row of spots. In ♂ the spots are more or less silvered; in ♀ the submarginal lunules sometimes silvered, sometimes pale yellow; all the other spots pale yellow.

var. b. BEHRENSII, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 370, (1869); Butt. N. Am., I, t. 12, Arg., (1870); Kirby, Cat., p. 163, (1871); Scud., Buff. Bull., II, p. 260, (1875). Mendocino, Shasta, California.

Under surface of secondaries in both sexes deep ferruginous with more or less of a paler greyish tint between the outer row of spots and the submarginal lunules; all the spots brilliant silver. The greatest difference between this and the preceding variety is in the females; between the males it is not much.

†*var. c. PURPURASCENS, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1876). Oregon.

This may prove to be one or the other of the above forms.

206. HESPERIS, W. H. EDWDS., Proc. Ent. Soc., Phil., II, p. 502, (1864); Reak., l. c., VI, p. 139, (1866); W. H. Edwds., Butt. N. Am., I, t. 7, Arg., (1868); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 261, (1875); Mead, Wheeler's Rep., V, p. 754, (1875). Colorado, Utah.

†*207. INORNATA, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 64, (1872); Butt. N. Am., II, t. 5, Arg., (1876); Scud., Buff. Bull., II, p. 261, (1875). California.

208. ZERENE, BDL., Ann. Soc. Ent., Fr., 2me Ser. X, p. 303, (1852); Behr, Proc. Cal. Acad. Nat. Sc., II, p. 175, n. 9, (1858-1862); W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 436, (1864); Butt. N. Am., I, t. 13, Arg., (1870); Kirby, Cat., p. 158, (1871); Scud., Buff. Bull., II, p. 261, (1875). California.

Arg. Hydaspe, Bdl., Lep. Cal., p. 60, (1869).

Under the name of *Zerene* Dr. Boisduval in 1852 placed both this and the species afterwards described by Dr. Behr as *Monticola*. In 1869, premising that he had confounded two species, he renamed this one *Hydaspe* and retained *Zerene* for the species which in the interim (1863) Dr. Behr had separated as *Monticola*; of course Dr. Behr's name will stand for the latter and Dr. Boisduval's for the present, whilst *Hydaspe* sinks into a synonym.

var. a. IRENE, BDL., (*Arg. Egleis* var. *Irene*), Lep. Cal., p. 59, (1869). California.

Arg. Montivago, Kirby, (nec Behr), Cat., p. 159, (1871).

Arg. Irene, Scud., Buff. Bull., II, p. 261, (1875).

Submarginal lunules on under surface of secondaries in both sexes silver; all other spots whitish yellow as in *Zerene*.

var. b. *MORMONIA*, BDL., Lep. Cal., p. 58, (1869); California. Scud., Buff. Bull., II, p. 261, (1875).

Arg. Montivago, W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 435, n. 5, (1864).

Arg. Nenoquis, Kirby, (*nec Reak.*), Cat., p. 160, (1871).

All spots on under side of secondaries silver.

var. c. *MONTIVAGO*, BEHR, Proc. Cal. Acad. Nat. Sc., California. II, p. 174, n. 4, (1858-1862), l. c., III, p. 84, (1863); Kirby, Cat., p. 159, (1871); Scud., Buff. Bull., II, p. 261, (1875).

Arg. Egleis, Bdl., Lep. Cal., p. 59, (1869).

Very close to *Mormonia*, if not, as I believe, identical. Ground colour of under surface appears to be paler than in that form, and in some instances with only the submarginal lunules of secondaries silver.

? var. d. *RUPESTRIS*, BEHR, Proc. Cal. Acad. Nat. Sc., California. II, p. 175, n. 6, (1858-1862), l. c., III, p. 84, (1863); W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 435, (1864); Butt. N. Am., II, t. 7, Arg., (1876); Kirby, Cat., p. 159, (1871); Scud., Buff. Bull., II, p. 261, (1875).

Black markings heavier, with a tendency to suffusion. Submarginal lunules of under side of secondaries partly silver, sometimes all the spots more or less silvered.

209. *EURYNOME*, W. H. EDWDS., Trans. Am. Ent. Soc., IV, Colorado. p. 66, (1872); Butt. N. Am., II, t. 1, Arg., (1875); Mead, Wheeler's Rep., V, p. 755, (1875); Scud., Buff. Bull., II, p. 260, (1875).

? *Arg. Astarte*, W. H. Edwds., (*nec Dbldy.*), Proc. Ent. Soc., Phil., I, p. 221, (1862).

This is not the "n. 4 *Astarte*" of Edwds. in Proc. Ent. Soc., Phil., III, p. 435, which is species (No. 210) described below as follows:

‡210. *ARGE*, NOB.—This name I have given to a smaller allied species from California, which has been sometimes mistaken for *Montivago*, and which may be a Pacific coast var. of *Eurynome*. It expands $1\frac{1}{2}$ – $1\frac{3}{4}$ inches; is on upper surface a trifle more red in colour, otherwise much the same as in that species. Beneath the primaries, except along the costa and towards the apex where they are buff, are tinged with red; in some cases the three or four marginal lunules nearest apex are silver, oftener not. Secondaries reddish buff, palest between the marginal lunules and the last row of silver spots, but nowhere dark; spots all silvered, no tinge of green whatever in any example of the very many I have examined. When compared with *Eurynome*, beneath the latter is much paler, is yellowish and generally mottled or shaded more or less with greenish, whilst the present species is darker, is of a ferruginous buff and never with the slightest indication of green; the spots are also comparatively smaller and not as heavily silvered as in *Eurynome*. This is the species cited as *Astarte*, Dbldy., by W. H. Edwds., Proc. Ent. Soc., Phil., III, p. 435, (1864), and later considered by the same author as identical with *Eurynome*, from which, however it is I believe, distinct, as shown above.

211. ADIANTE, BDL., *Lep. Cal.*, p. 61, (1869); Kirby, *Cat.*, p. 157, (1871); Scud., *Buff. Bull.*, II, p. 261, (1875).
Arg. Adiante, (*Bdl. MSS.*), *Behr*, *Proc. Cal. Acad. Nat. Sc.*, II, p. 175, (1858-1862), l. c., III, p. 84, (1863); W. H. Edwds., *Proc. Ent. Soc., Phil.*, III, p. 436, (1864).
Arg. Adraste, Kirby, *Cat.*, p. 160, (1871).
- †*212. CLIO, W. H. EDWDS., *Trans. Am. Ent. Soc.*, V, p. 106, (1874). Colorado, Montana.
- *213. BISCHOFFII, W. H. EDWDS., *Trans. Am. Ent. Soc.*, III, p. 189, (1870); Butt. *N. Am.*, II, t. 3, *Arg.*, (1875); Scud., *Buff. Bull.*, II, p. 260, (1875). Alaska.
- var. a. OPIS, W. H. EDWDS., *Trans. Am. Ent. Soc.*, V, p. 105, (1874); Butt. *N. Am.*, II, t. 3, *Arg.*, (1875). Cariboo, Brit. Col.
 No silver on spots of under surface.
214. MYRINA, CRAM., (*Pap. M.*), *Pap. Ex.*, II, t. 189, (1779); (*Arg. M.*) Hüb., *Verz. Bek. Schmett.*, p. 30, (1816); Say, *Am. Ent.*, III, t. 46, (1828); Bdl.-Lec., *Lep. Am. Sept.*, p. 155, t. 45, (1833); Kirby, *Fann. Am. Bor.*, IV, p. 290, (1837); Harris, *Ins. Inj. Veg.*, Flint's Ed., p. 286, f. 112, (1862); (*Brenthis M.*) H-S., *Prodr. Lep. Reg. Corr.-Blatt*, p. 91, (1865); (*Arg. M.*) Morris, *Syn.*, p. 43, (1862); Saund., *Can. Ent.*, I, p. 55, *Lar.*, (1868); Kirby, *Cat.*, p. 162, (1871); (*Brenthis M.*) Scud., *Buff. Bull.*, II, p. 262, (1875); (*Arg. M.*) W. H. Edwds., *Can. Ent.*, VIII, p. 161, (1876).
Pap. Myrinus, *Herbst*, *Natursyst. Ins. Schmett.*, IX, p. 178, t. 255, (1798).
Arg. Myrissa, *Godt.*, *Enc. Meth.*, IX, pp. 266, 806, (1819).
 Larva on violets.
215. APHIRAPE VAR. TRICLARIS, HUB., *Zutr. Ex. Schmett.*, II, (1818-1824); Moseh., *Wien. Ent. Mon.*, IV, p. 334, (1860); Stgr., *Cat.*, p. 20, (1871); Kirby, *Cat.*, p. 162, (1871). Labrador, British Columbia, Colorado.
Arg. Triclaris, *Mead*, *Wheeler's Rep.*, V, p. 757, (1875); (*Brenthis T.*) Scud., *Buff. Bull.*, II, p. 262, (1875).
Arg. Ossianus, *Bdl.*, (*nec Herbst*), *l.c. Lep.*, t. 19, (1832); Bdl.-Lec., *Lep. Am. Sept.*, p. 157, (1833); Morris, *Syn.*, p. 48, (1862).
216. HELENA, W. H. EDWDS., *Trans. Am. Ent. Soc.*, III, p. 268, (1871); *Mead*, *Wheeler's Rep.*, V, p. 757, (1875); (*Brenthis M.*) Scud., *Buff. Bull.*, II, p. 262, (1875). Colorado, Montana.
217. CHARICLEA, SCHNEIDER, (*Pap. C.*), *Nou. Mag.*, V, p. 588, (1794); *Herbst*, *Natursyst. Ins. Schmett.*, X, t. 272, (1800); Hüb., *Eur. Schmett.*, I, f. 769, 770, (1824-1826); (*Arg. C.*) Ochs., *Schmett. Eur.*, I, p. 66, (1807), IV, p. 114, (1816); Treits., X, 1, p. 15, (1834); Dup., I, p. 344, t. 48, (1832); (*Brenthis C.*) H-S., *Prodr. Syst. Lep. Reg. Corr.-Blatt*, p. 91, Labrador, Brit. Col., Greenland, Lappland.

(1865); (*Arg. C.*) Bdl.-Lee., Lep. Am. Sept., p. 161, (1833); Bdl., Sp. Gen., I, t. 11, f. 2, (1836); Scud., Proc. Bost. Soc. Nat. Hist., XVII, p. 40, (1875); Mosch., Wien. Ent. Mon., IV, p. 338-342, (1860); Morris, Syn., p. 49, (1862); Stgr., Cat., p. 20, (1871); Kirby, Cat., p. 161, (1871); (*Brenthis C.*) Scud., Buff. Bull., II, p. 262, (1875).

Arg. Arctica, Zett., Ins. Lapp., p. 899, (1840).

var. a. *BOISDUVALII*, DUP., Sup., I, t. 20, (1832); Sommer, Bdl., Ic., I, p. 98, t. 20, (1832); Hüb.-Gey., Eur. Schmett., I, f. 1020-1022, (1827-1841); Mosch., Wien. Ent. Mon., IV, p. 341, 342, (1860); Stgr., Cat., p. 20, (1871); Kirby, Cat., p. 161, (1871); Scud., Buff. Bull., III, p. 262, (1875).

Destitute, or nearly so, of the white basal marks on under side of secondaries.

var. b. *MONTINUS*, SCUD., Proc. Ess. Ins., III, p. 166, (1862); Bost. Jnl. Nat. Hist., VII, p. 626, (1863); (*Brenthis M.*) Buff. Bull., II, p. 263, (1875); (*Arg. M.*) Kirby, Cat., p. 161, (1871).

Prevailing colour of under side of secondaries much more reddish or rust coloured.

White Mts.
of New
Hampshire.

218. *FREIJA*, THNB., (*Pap. F.*), Diss. Ent. Suec., II, p. 34, t. 5, f. 14, (1791); Quens., Act. Hol., p. 276, t. 10, (1791); Herbst, Natursyst. Ins. Schmett., X, t. 272, (1800); Esp., Schmett., I, 2, t. 109, (? 1790); Hüb., Eur. Schmett., f. 55, 56, (1793), 771, 772, (1807); Ochs., Schmett. I, 1, p. 78, (1807); (*Arg. F.*) Hüb., Verz. Bek. Schmett., p. 30, (1816); Godt., Enc. Meth., IX, p. 273, (1819); Meigen, Eur. Schmett., t. 14, (1829-1832); Freyer, Neu. Beit., t. 295, (1831-1858); Dup., Supl., I, 11, t. 19, (1832); Bdl., Icon., I, t. 19, (1832); Kirby, Fann. Am. Bor., IV, p. 291, (1837); Zett., Ins. Lapp., p. 897, (1840); H-S., Eur. Schmett., I, p. 36, (1843); Eversm., Ent. Russ., V, p. 61, t. 7, (1851); Mosch., Wien. Ent. Mon., IV, p. 338, (1860); Morris, Syn., p. 46, (1862); Scud., Proc. Bost. Soc. Nat. Hist., XVII, p. 299, (1875); Stgr., Cat., p. 20, (1871); Mead, Wheeler's Rep., V, p. 756, (1875); (*Brenthis F.*) Scud., Buff. Bull., II, p. 262, (1875).

Brenthis Freya, H-S., Prodr. Lep. Reg. Corr.-Blatt, p. 91, (1865).

Pap. Dia Lapponica, Esp., Schmett., I, 2, t. 97, (? 1790.)

Arg. Lapponica, Kirby, Cat., p. 161, (1871).

var. a. *TARQUINIUS*, CURT., (*Melitea*), Ross' 2d Voy., App. Nat. Hist., p. 68, (1835); Kirby, Cat., p. 161, (1871); (*Brenthis T.*) Scud., Buff. Bull., II, p. 262, (1875).

Boothia-
Felix.

219. *POLARIS*, BDL., Ind. Meth., p. 15, (1829); Icon., t. 20, (1833); Sp. Gen., I, t. 11, f. 1, (1836); Bdl.-Lee., Lep. Am. Sept., p. 159, (1833); Dup., Supl., I, 11, t. 20, (1832); Freyer, Neu. Beit., V, t. 439, (1831-1858); H-S., Eur. Schmett., I, p. 32, (1843);

Labrador,
Arctic Am.

Eversm., Ent. Russ., V, p. 65, t. 7, (1851); Wallengr., Skand. Dagf., p. 91, (1853); Mosch., Wien. Ent. Mon., IV, p. 342, (1860); Morris, Syn., p. 48, (1862); Scud., Proc. Bost. Soc. Nat. Hist., XVII, p. 303, (1875); Stgr., Cat., p. 20, (1871); Kirby, Cat., p. 161, (1871); (*Brenthis P.*) Scud., Buff. Bull., II, p. 263, (1875); (*Papilio P.*) Hüb., Eur. Schmett., I, f. 1016-1019, (1827-1841).

220. FRIGGA, THNB., (*Pap. F.*), Diss. Ent. Suec., II, p. 33, Labrador, (1791, Dec. 10); Quens., Act. Hol., t. 19, f. 6, Brit. Col., (1791); Hüb., Eur. Schmett., I, f. 49, 50, (1793); Colorado, Ochs., I, 1, p. 74, (1807); (*Arg. F.*) Hüb., Verz. Lappland, Bek. Schmett., p. 30, (1816); Godt., Enc. Meth., N. W. Sibe- IX, p. 272, (1819); Dup., Supl., I, t. 19, (1832); ria, N. Rus- (*Brenthis F.*) H-S., Prodr. Syst. Lep. Reg. Corr.— sia. Blatt, p. 91, (1865); (*Arg. F.*) Eversm., Ent. Russ., V, p. 59, (1851); Mosch., Wien. Ent. Mon., IV, p. 337, (1860); Stgr., Cat., p. 20, (1871); Kirby, Cat., p. 160, (1871); (*Brenthis F.*) Scud., Buff. Bull., II, p. 263, (1875).

var. a. SAGA, KADEN.—Where described I cannot at present ascertain. It is a little smaller than the normal *Frigga*. On upper surface the basal half of secondaries entirely suffused with black; beneath the basal half of secondaries, except the large white spot at costa near base, are dark rust red, the usual marks but dimly discernible. Labrador.

221. BELLONA, FABR., (*Pap. B.*), Syst. Ent., p. 517, (1775); Canada, New Ent. Syst., III, 1, p. 148, (1793); (*Arg. B.*) Hüb., England, Zutr., p. 42, f. 975, 976, (1818-1837); Godt., Enc. Middle and Meth., IX, p. 271, (1819); (*Brenthis B.*) H-S., Western Prodr. Syst. Lep. Reg. Corr.—Blatt, p. 91, (1865); States to the (*Arg. B.*) Bdl.—Lee., Lep. Am. Sept., p. 164, t. 45, Rocky Mts. (1833); Harris, Ins. Inj. Veg., Flint's Ed., p. 287, f. 113, 114, (1862); Morris, Syn., p. 45, (1862); Pack., Guide, p. 253, (1869); Kirby, Cat., p. 159, (1871); (*Brenthis B.*) Scud., Buff. Bull., II, p. 263, (1875).

Papilio Myrina, Martyn, (nec Cram.), Psyche, t. 1, f. 2, 3, (1797).

Larva on violets.

- var. a. EPITHORE, BDL., MSS. Edwds., Proc. Ent. Soc., California, Phil., II, p. 504, (1864); Lep. Cal., p. 58, (1869); Oregon. Kirby, Cat., p. 160, (1871); Mead, Wheeler's Rep., V, p. 756, (1875); (*Brenthis E.*) Scud., Buff. Bull., II, p. 263, (1875).

Fore wings not produced so much apically. Not as much dark suffusion on basal half of upper surface as is generally the case in *Bellona*. Markings of under surface of secondaries somewhat more distinct.

- var. b. ♀.—It is difficult to say if this example belongs to *Epithore* Utah, or *Frigga*, but probably to the first. The upper surface is nearly as in *Epithore*. The whole under surface is paler than either of these species. The broad irregular mesial band and basal spots of secondaries are all uniform clear yellow, and all save one, basal spot at costa, edged with a sharp black line.

†*222. IMPROBA, BUTL., Ent. Mon. Mag., XIII, 206, (1877). Cambridge Bay, Arctic Am.

‡*Morrisii*, Reak., Proc. Acad. Nat. Sc., Phil., p. 245, (1866), was described from an example of *Arg. Euphrosyne*, L., which Mr. Reakirt received from M. Lorquin the younger, with California erroneously given as its locality.

Nenoquis, Reak., Proc. Acad. Nat. Sc., Phil., p. 247, (1866), is *Dia*, L., received by Mr. Reakirt under the same circumstances.

The Argynnidæ of the western slope, or Pacific side of the Rocky Mts., are without doubt, if we except perhaps the Coliades, the most difficult of all the N. Am. Diurnæ to deal with, as they not only run into certain variations, but again into subvariations, and even further; the two species *Monticola* and *Zerene*, first considered identical by Dr. Boisduval, are perhaps the most perplexing; each of these bears the same relation to some of their varieties as does *Niobe* to its var. *Eris* and *Adippe* to *Cleodoxa*, but presenting by no means the stability of form of these European variations, but branching out into endless and endless varieties until the student is completely at a loss to know where or to what they may belong. The presence or absence of silver spots is not of the slightest specific importance, for the same species may be with or without them, or one sex of the same species is with them silvered and in the other they are devoid of it, or again the silver is confined to a single row of spots, or even to part of a row, or to one or two spots only. *Edwardsii* and *Nevadensis* are so close as to scarce deserve even a varietal name. *Nokomis* may be and I believe is a form of *Cybele*, coming as it does from Arizona, which for its Lep. Fauna is the wonderland of N. Am., we need scarce be astonished at its remarkable aberrancy. *Bremnerii* may be a form of *Monticola*. Nos. 194, 195, 197, 199, 200, 201, 205 var. c., 207, 212 and 222 are entirely unknown to me in nature; the majority of them I feel assured will prove to be varieties of some of the older species.

The lately described *Alcestis* is a var. of *Aphrodite*; Mr. Edwds. informed me that the larva is different; in my estimation the difference in the appearance of the larva amounts to very little; for if the perfect insect varies from the normal form, why may not then the larva likewise vary? In fact, I doubt if there can be much variation in the imago unless it existed in the earlier stages. Too much stress by far is laid on the circumstance of whether the larva differs or not from that of the ordinary form. If this were so conclusive, why is it then that the green and brown larvæ of *Cer. Imperialis*, both bring precisely the same form of moth, or the tawny and green larvæ of *Thyreus Abbotii*, produce the same results? No; if we have a varietal form or subspecies in the last stage of the insect we must just as reasonably expect to find it in the earlier stages. Is the Albino offspring of negro parents black when a child or with black or brown eyes? Certainly not; as an infant it has the same abnormal white cuticle to its body and the same fiery iris to the eye as when it becomes an adult. Again, would the child born with six toes or fingers on each foot or hand have but five to each extremity on attaining maturity?

GENUS 5. MELITÆA, FABR.

{ *Phyciodes*, Hüb. }
 { *Eresia*, Bll. }

223. HERMAS, HEW., (*Eresia* H.), Ex. Butt., III, Eres., t. Los Angeles,
 5, f. 32, (1864); (*Phyciodes* H.) Kirby, Cat., p. Califa.;
 174, (1871); Scud., Buff. Bull., II, p. 268, (1875). Mexico.
 ‡*Eresia Geniguch*, Reak., Proc. Ent. Soc., Phil., V, p.
 225, (1865).

The figure of (under side) *Hermas* agrees with the original type
 of *Geniguch*, Reak., in every respect except that the ground
 colour of the former has a little more of a reddish tinge, not
 so much of an ochre.

224. TEXANA, W. H. EDWDS., Proc. Ent. Soc., Phil., II, p. Texas, Lou-
 81, (1863); (*Eresia* T.) Reak., l. c., V, p. 226, isiana, Flor-
 (1865); (*Phyc.* T.) Kirby, Cat., p. 174, (1871); ida, Mexico.
 (*Anthanassa* T.) Scud., Buff. Bull., II, p. 268, (1875).
Eresia Cineta, W. H. Edwds., Proc. Ent. Soc., Phil.,
 II, p. 502, (1864); (*Phyc.* C.) Kirby, Cat., p. 177,
 (1871).
Eresia Smerdis, Hew., Ex. Butt., III, Eres., t. 5, f.
 33, 34, (1864); Reak., Proc. Ent. Soc., Phil., II,
 p. 226, (1865).

- †*225. PUNCTATA, W. H. EDWDS., (*Eresia* P.), Trans. Am. Arizona,
 Ent. Soc., III, p. 191, (1870); (*Phyc.* P.) Kirby, New Mexico
 Cat., p. 647, (1871); (*Anthanassa* P.) Scud., Buff.
 Bull., II, p. 268, (1875).

226. FRISIA, POEY, Cent. Lep. Cuba, p. 9, t. 2, (1832); Florida
 (*Melithæa* F.) Cat., Met., etc., Mem. Soc. Econ. Keys; Cuba.
 Hab., 2 Ser. III, 125, (1846); (*Melithæa* F.) La Sag.,
 Hist. Cub. Anim. Art., p. 535, (1857); (*Eresia* F.)
 H-S., Schmelt. Cuba Reg. Corr.-Blatt, p. 162,
 (1864); Reak., Proc. Ent. Soc., Phil., II, p. 226,
 (1865); (*Phyc.* F.) Kirby, Cat., p. 173, (1871);
 Scud., Buff. Bull., II, p. 267, (1875).

Eresia Gyges, Hew., Ex. Butt., III, Eres., t. 6, f. 45,
 46, (1864).

227. PICTA, W. H. EDWDS., Proc. Ent. Soc., Phil., IV, p. Colorado,
 201, (1865); (*Eresia* P.) Reak., Proc. Ent. Soc., Nebraska,
 Phil., VI, p. 141, (1866); (*Mel.* P.) Kirby, Cat., p. Arizona,
 171, (1871); Streck., Lep., Rhop.-Het., p. 65, t. 8, Mexico.
 f. 10, (1873); (*Phyc.* P.) Scud., Buff. Bull., II, p.
 267, (1875).

- †*228. CANACE, W. H. EDWDS., (*Phyc.* C.), Trans. Am. Ent. Southern
 Soc., III, p. 206, (1871); Scud., Buff. Bull., II, p. California.
 267, (1875); Mead, Wheeler's Rep., V, p. 764,
 (1875).

This is only known to me through Mr. Edwds.' description,
 which, however, seems equally applicable to *M. Picta*, but
 whether it be identical with that species I am of course at
 present unable to determine; or again, it may be only
 another of the endless variations of *M. Pratensis*.

229. PHAON, W. H. EDWDS., Proc. Ent. Soc., Phil., II, p. 505, (1864); Kirby, Cat., p. 171, (1871); (*Phyc. P.*) Scud., Buff. Bull., II, p. 268, (1875). Ga., Fla. and Gulf States to Texas, inclusive.
230. VESTA, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 371, (1869); Kirby, Cat., p. 171, (1871); (*Phyc. V.*) Scud., Buff. Bull., II, p. 266, (1875). Texas.
231. THAROS, DRU., (*Pap. T.*), Ill. Ex. Ent., I, p. 43, t. 21, f. 5, 6, (1770); Cram., Pap. Ex., II, t. 169, E, F, (1779); Hbst., IX, t. 260, 4, 5, (1798); (*Eres. T.*) Stephs., Ill. Brit. Ent. Haust., I, 150, (1828); (*Mel. T.*) Bdl.-Lec., Lep. Am. Sept., p. 170, t. 47, (1833); Morris, Syn., p. 51, (1862); (*Eres. T.*) Reak., Proc. Ent. Soc., Phil., VI, p. 142, (1866); (*Phyc. T.*) Kirby, Cat., p. 172, (1871); Scud., Buff. Bull., II, p. 267, (1875); Mead, Can. Ent., VII, p. 161, (1875). S. Labrador; Canada; United States east of Rocky Mts.
- Pap. Morpheus, Fabr.*, Syst. Ent., p. 530, n. 370, (1775); Herbst, Natur-syst. Ins. Schmiett., IX, p. 201, t. 260, f. 1, 2, (1798).
- Arg. Morpheu, Godt.*, Enc. Meth., IX, p. 289, (1819).
- Pap. Cocyla, Cram.*, Pap. Ex., II, t. 101, A, B, (1779); Bdl., Lep. Cal., p. 53, (1869).
- Pap. Euclea, Bergs.*, Nom. u. Besch. Ins., IV, p. 23, t. 79, (1780); Hbst., X, t. 274, 9, 10, (1800).
- Arg. Tharossa, Godt.*, Enc. Meth., IX, p. 289, (1819).
- Mel. Selenis, Kirby*, Faun. Am. Bor., IV, p. 289, (1837).
- Mel. Pharos, Emmons*, Agr. Nat. Hist. N. Y., V, p. 212, t. 43, (1854); Harris, Ins. Inj. Veg., Flint's Ed., p. 289, f. 116, 117, (1862).
- Eresia Gorgone, H-S.*, Ind. Syst., Reg. Corr.-Blatt, p. 104, (1865).
- , *Engr.*, Pap. D'Eur., I, p. 66, t. 17, f. 30 a, 30 b, (1779).
- var. a. MARCIA, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 207, (1868); (*Phyc. M.*) Kirby, Cat., p. 172, (1871).
- Pap. Cocyla, Cram.*, Pap. Ex., II, t. 101, f. C, (1779).
- Whole under surface of secondaries mottled and shaded with brown and grey.
- ab. b. PACKARDI, SAUND., Pack. Guide, p. 256, (1869); (*Phyc. P.*) Kirby, Cat., p. 172, (1871); Scud., Buff. Bull., II, p. 268, (1875). Ontario, Can.
- Larva on *Actinomeris Helianthoides*.
- The dark colour predominating and the normal style of ornamentation almost entirely changed.
- In Hübner's Sam. Ex. Schmiett., I, on first page in the index is cited "Dryades A. Reticulate, a. Liriope, b. Gorgone," on the plate of "Dryades A. reticulatae a.," which is the fortieth in the vol., though none are numbered, are four good figures of *Liriope*, designated by that name (*Dryades reticulata Liriope*). Dr. Herr.-Schaeff., in his Ind. Syst., p. 104, Reg. Corr.-Blatt, (1865), quotes this by the index name (*Gorgone*) as a synonym of *Tharos*, which is curious, as said *Gorgone* of index—*Liriope* of plate—is a quite distinct S. American spe-

cies, bearing no resemblance to *Tharos* in particular; on the same page he cites, under its name *Liriope*, Cramer's f. C, D, t. 1, (Vol. I), as a separate species from Hubner's, above quoted, when it is apparent that both authors represented the same insect and also denoted it by the same name, *Liriope*. Hubner's figures are, as usual, good, and Cramer's are recognizable, and both are so good that any one at all acquainted with the common tropical species *Liriope* could immediately identify it from either. Mr. Scudder cites two of the figures of Hubner's plate (Nos. 1, 2) as representing *Ismeria*, (*Carlota*, Reak.), from which they are even farther removed than from *Tharos*, and the other two (Nos. 3, 4) he regards as distinct and retains for them Hubner's index name of *Gorgone*.

232. BATESII, REAK., (*Eresia B.*), Proc. Ent. Soc., Phil., V, p. 226, (1865); (*Phyc. B.*) Kirby, Cat., p. 172, (1871); Scud., Buff. Bull., II, p. 268, (1875). Middle States
Ohio, Md.,
Va.
233. PRATENSIS, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 86, (1863); (*Phyc. P.*) Kirby, Cat., p. 173, (1871); Scud., Buff. Bull., II, p. 267, (1875). California
and adjoining
territory.
- ♀ *Mel. Campestris*, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 86, (1863); (*Eresia C.*) Reak., Proc. Ent. Soc., Phil., VI, p. 142, (1866); (*Phyc. C.*) Kirby, Cat., p. 173, (1871).
- Mel. Pulchella*, Bdl., Ann. Soc. Ent. Fr., 2me Ser. X, p. 306, (1852); (*Phyc. P.*) Scud., Buff. Bull., II, p. 266, (1875).
- var. a. PALLIDA, W. H. EDWDS., Proc. Ent. Soc., Phil., II, p. 505, (1864); (*Eresia P.*) Reak., Proc. Ent. Soc., Phil., VI, p. 142, (1866); (*Phyc. P.*) Kirby, Cat., p. 174, (1871); Scud., Buff. Bull., II, p. 267, (1875); Mead, Wheeler's Rep., V, p. 763, (1875). Colorado,
Texas, Kan-
sas, Utah.
- ♂ *Phyc. Camillus*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 268, (1871); Mead, Wheeler's Rep., V, p. 764, (1875).
- ♂ ♀ *Phyc. Emissa*, W. H. Edwds., l. c., p. 269, (1871).
Mesial band broader and in common with the marginal lunules,
above and below, on all wings pale yellow or whitish, more
especially so in the ♀. Secondaries beneath pale.
- ‡ab. b. ♀ MATA, REAK., (*Eresia M.*), Proc. Ent. Soc., Phil., VI, p. 142, (1866); (*Phyc. M.*) Kirby, Cat., p. 177, (1871); (*Mel. M.*) Streck., Lep., Rhop.-Het., p. 65, t. VIII, f. 11, (1874); (*Phyc. M.*) Mead, Wheeler's Rep., V, p. 763, (1875). Colorado.
- A white or Albinous aberration of the var. *Pallida*. Analogous examples sometimes occur of the European *M. Cinzia* in which the fulvous is entirely replaced on both surfaces by yellowish white.
- var. c. ORSEIS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 206, (1871); (*Phyc. O.*) Scud., Buff. Bull., II, p. 267, (1875). Sierra Ne-
vada, Cali-
fornia; ? Or-
egon.
- Upper surface very heavily suffused with blackish; reticula-
tions of under surface more sharply defined than is generally
the case with *Pratensis*.
234. MONTANA, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 85, (1863); (*Phyc. M.*) Kirby, Cat., p. 173, (1871). Sierra Ne-
vada, Cali-
fornia.

- Mel. Orsa*, Bdl., Lep. Cal., p. 55, (1869); (*Phyc. O.*) Kirby, Cat., p. 173, (1871).
Phyc. Pratensis, Scud., (*nec Behr*), Buff. Bull., II, p. 267, (1875).
235. MYLITTA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., California; p. 160, (1861); Proc. Ent. Soc., Phil., II, p. 504, ? Mexico. (1864); Morris, Syn., p. 324, (1862); (*Eresia M.*) Reak., Proc. Ent. Soc., Phil., VI, p. 142, (1866); (*Phyc. M.*) Kirby, Cat., p. 173, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, Lar., (1873); Mead, Wheeler's Rep., V, p. 764, (1875).
Mel. Collina, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 86, (1863).
Mel. Callina, Bdl., Lep. Cal., p. 54, (1869); (*Phyc. C.*) Send., Buff. Bull., II, p. 267, (1875).
Mel. Epula, Bdl., Lep. Cal., p. 54, (1869).
Phyc. Pulchella, Scud., (*nec Bdl.*), Buff. Bull., II, p. 266, (1875).
 Larva on various species of thistle (*Carduus*).
236. NYCTEIS, DBLDY.-HEW., Gen. Diur. Lep., p. 181, t. 23, Canada, New f. 3, (1846-1850); Chenu, Pap. Diur., f. 200, Eng. States; (1851-1852); Morris, Syn., p. 325, (1862); (*Eres. N.*) Reak., Proc. Ent. Soc., Phil., VI, p. 141, (1866); New York, (*Phyc. N.*) Kirby, Cat., p. 173, (1871); (*Charidryas N.*) Scud., Syst. Rev. Am. Butt., p. 26, (1872); Penn'a, Vir- ginia, thence westward to the Rocky Mountains; Am. Ass. Adv. Sc., p. 108, (1874); (*Charidryas N.*) Scud., Buff. Bull., II, p. 266, (1875); (*Phyc. N.*) Mead, Wheeler's Rep., V, p. 762, (1875).
Mel. Oenone, Scud., Proc. Essex Ins., III, p. 166, (1862).
Mel. Nyctis, Bdl., Lep. Cal., p. 53, (1869).
Mel. Harrisii, W. H. Edwds., Can. Ent., II, p. 163, (1870); Saund., l. c., IV, p. 161, (1872).
 Larva on *Helianthus Divaricatus* (sun-flower), *Actinomeris Helianthoides*, *A. Squarrosa*.
237. ISMERIA, BDL.-LEC., Lep. Am. Sept., p. 168, t. 46, (1833); From Vir- ginia south- ward to the Gulf of Mex. and west- ward to the Rocky Mts.
(Mel. I.) Dbldy., Gen. Diur. Lep., I, p. 181, n. 22, (1846-1850); Morris, Syn., p. 50, (1862); (*Phyc. I.*) Kirby, Cat., p. 174, (1871); Send., Can. Ent., IV, p. 85, (1872); (*Charidryas I.*) Buff. Bull., II, p. 266, (1875).
Mel. Nycteis, W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 161, (1861).
Eresia Carlota, Reak., Proc. Ent. Soc., Phil., VI, p. 141, (1866); (*Phyc. C.*) Kirby, Cat., p. 173, (1871); Mead, Wheeler's Rep., V, p. 762, (1875).
 Larva on *Helianthus Trachelifolius*.

There has been some uncertainty as to what Bdl.-Lec.'s figures really represent. These Mr. Scudder ascertained were copied from Abbot's unpublished drawings, and poorly enough copied at that. No one will dispute that they are caricatures, but nevertheless there can no longer be any doubt that they were intended to illustrate this species.

238. HARRIS, SCUD., Proc. Essex Ins., III, p. 167, (1862); Canada, Pack., Guide, p. 257, (1869); (*Phyc. H.*) Kirby, New Eng. Cat., p. 174, (1871); (*Limnæcia H.*) Scud., Syst. States, New Rev. Am. Butt., p. 27, (1872); (*Cinclidia H.*) Buff. York. Bull., II, p. 266, (1875).

Mel. Ismeria, Harris, (nec Bdl.-Lec.), Ins. Inj. Veg., Flint's Ed., p. 288, (1862).

Larva on *Diplopappus Umbellatus*.

The figure (187 on p. 258) in Packard's Guide, purporting to be the larva of this insect, does not represent the larva of any species of diurnal Lepidoptera.

Messrs. W. H. Edwds. and Scudder both cite the *Ismeria* of Harris (p. 288, Ins. Inj. Veg.) as a synonym of *Nycteis*, Dblidy. Both authors are in the wrong. First, Harris' description plainly and unmistakably applies to the species subsequently described by Scudder as *Harrisii*, and not at all to *Nycteis*. Dr. Harris remarks, after his description, "the only specimen which I have seen was sent to me by Dr. D. S. C. H. Smith of Sutton." I have seen this specimen, which is still in the Harris collection (now in the keeping of the Boston Mus. Nat. Hist.). It is a specimen of *Harrisii*, Scud., and is No. 514 in the collection. On referring to Dr. Harris' MSS. catalogue, which is with the collection, I found No. 514 to be "*Melitæa*, Sutton, Dr. Smith."

239. MINUTA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 161, (1861); Morris, Syn., p. 325, (1862); Kirby, Texas, Colorado, New Mexico, Cat., p. 171, (1871); Mead, Wheeler's Rep., V, p. 761, t. 36, (1875); (*Schoenis M.*) Scud., Buff. Bull., II, p. 265, (1875).

Mel. Arachne, W. H. Edwds., Trans. Am. Ent. Soc., II, p. 372, (1869); Kirby, Cat., p. 171, (1871); Mead, Wheeler's Rep., V, p. 760, (1875); (*Schoenis A.*) Scud., Buff. Bull., II, p. 265, (1875).

240. PALLA, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 305, California, (1852); Morris, Syn., p. 52, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 88, (1863); Reak., Proc. Ent. Soc., Phil., VI, p. 139, (1866); Kirby, Cat., p. 170, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 167, Lar., (1873); Mead, Wheeler's Rep., V, p. 759, (1875); (*Lemonias P.*) Scud., Buff. Bull., II, p. 264, (1875).

Larva on *Casteleja Breviflora*.

var. a. HELCITA, BDL., Lep. Cal., p. 55, (1869); (*Lemonias H.*) Scud., Buff. Bull., II, p. 264, (1875).

var. b. GABBI, BEHR, Proc. Cal. Acad. Nat. Sc., III, Southern California, p. 89, (1863); Kirby, Cat., p. 171, (1871); (*Lemonias G.*) Scud., Buff. Bull., II, p. 264, (1875).

Mel. Sonoræ, Bdl., Lep. Cal., p. 56, (1869).

Submarginal lunules, and sometimes mesial band of under side of secondaries, silver or silvery white.

- var. c. HOFFMANNI, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 89, (1863); Reak., Proc. Ent. Soc., Phil., VI, p. 140, (1866); Kirby, Cat., p. 171, (1871); Mead, Wheeler's Rep., V, p. 760, (1875); (*Lemonias H.*) Scud., Buff. Bull., II, p. 264, (1875).
The black lines on outer half of upper surface of primaries partially obsolete, the red ground colour prevailing. On under side of secondaries the small ocelli in the space between the marginal lunules and mesial band is wanting.
- ? var. d. WHITNEYI, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 88, (1863); Kirby, Cat., p. 170, (1871); (*Lemonias W.*) Scud., Buff. Bull., II, p. 265, (1875).
Paler on both surfaces, black lines less diffuse; the small round spots on space between marginal lunules and mesial band of under side of secondaries obsolete or nearly so.
- †*240 a. POLA, BDL., Lep. Cal., p. 56, n. 44, (1869); Kirby, Cat., p. 171, (1871); (*Lemonias P.*) Scud., Buff. Bull., II, p. 265, (1875).
Not known to be in any N. Am. collection, and doubtless is one or the other of the above cited forms of *Palla*.
- †*241. ACASTUS, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 16, (1874); (*Lemonias A.*) Scud., Buff. Bull., II, p. 265, (1875).
I am entirely unacquainted with this insect in nature, but from the description I should surely suppose it to be identical with *M. Whitneyi*.
- †*242. STEROPE, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 190, (1870); Kirby, Cat., p. 647, (1871); (*Lemonias S.*) Scud., Buff. Bull., II, p. 265, (1875).
This is also unknown to me, but from the description it seems impossible that it can be anything else than the black ♀ form of *M. Palla*.
243. QUINO, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 90, (1863); Kirby, Cat., p. 164, (1871); (*Lemonias Q.*) Scud., Buff. Bull., II, p. 264, (1875).
244. ANICIA, DBLDY.-HEW., Gen. Diur. Lep., p. 179, t. 23, (1846-1850); W. H. Edwds., Proc. Ent. Soc., Phil., I, p. 223, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 91, (1863); Reak., Proc. Ent. Soc., Phil., VI, p. 140, (1866); Kirby, Cat., p. 164, (1871); Mead, Wheeler's Rep., V, p. 758, (1875); (*Lemonias A.*) Scud., Buff. Bull., II, p. 264, (1875).
- var. a. NUBIGENA, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 91, (1863); Kirby, Cat., p. 164, (1871); Mead, Wheeler's Rep., V, p. 758, (1875).
An Alpine variety presenting no very considerable differences from the stem form.
- †*245. HELVIA, SCUD., Proc. Bost. Soc. Nat. Hist., XII, p. 405, (1869); Kirby, Cat., p. 164, (1871); (*Lemonias H.*) Scud., Buff. Bull., II, p. 264, (1875).
246. EDITHA, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 305, (1852); Morris, Syn., p. 51, (1862); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 167, Lar., (1873).

California,
Colorado,
Nevada.

Mountain-
ous regions
of Colorado,
Nevada and
California.

S. California.

Montana,
Nevada,
Utah.

Oregon.

California.

Mts. of Cal-
ifornia, Col-
orado, Ne-
vada.

Alaska.

California.

Mel. Anicia var. *Editha*, Kirby, Cat., p. 164, (1871).

Lemonias Anicia, Scud., Buff. Bull., II, p. 264, (1875).

Larva on "*Erodium Cicutarium*, various species of *Trifolium* and *Viola*." Hy. Edwds.

247. COOPERI, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 90, (1863); Kirby, Cat., p. 164, (1871); (*Lemonias* C.) Scud., Buff. Bull., II, p. 264, (1875).

Larva on *Scrophularia*.

248. CHALCEDONA, DBLDY.-HEW., Gen. Diur. Lep., I, p. 180, t. 23, (1847); Reak., Proc. Ent. Soc., Phil., VI, p. 140, (1866); Kirby, Cat., p. 164, (1871); (*Lemonias* C.) Scud., Buff. Bull., II, p. 264, (1875).

Mel. Chalcedon, W. H. Edwds., Proc. Ent. Soc., Phil., I, p. 222, (1862); Butt. N. Am., I, t. I, Mel., (1871); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 89, (1863); Mead, Wheeler's Rep., V, p. 757, (1875).

Larva on "*Scrophularia Marylandica*, *Diplacus Glutinosus*, *Mimulus Luteus*, *Lonicera* and various species of *Casteleja*." Hy. Edwds.

249. PHÆTON, DRU., (*Pap. P.*), Ill. Ex. Ent., I, t. 21, (1767); Fabr., Syst. Ent., p. 481, (1775); Ent. Syst., III, p. 46, (1793); Cram., Pap. Ex., III, t. 193, C, D, (1782); Herbst, Natursyst. Ins. Schmett., VI, p. 111, t. 142, (1793); (*Mel. P.*) Bdl.-Lee., p. 167, t. 47, (1833); Bdl., Sp. Gen., t. 11, (1836); Emm., Agr. N. Y., V, p. 212, t. 43, (1854); Morris, Syn., p. 50, (1862); Harris, Ins. Inj. Veg., Flint's Ed., p. 288, f. 115, (1862); Kirby, Cat., p. 164, (1871); W. H. Edwds., Butt. N. Am., II, t. I, Mel., (1875); (*Euphydryas P.*) Scud., Syst. Rev. Am. Butt., p. 27, (1872); Buff. Bull., II, p. 263, (1875).

Mel. Phaetusa, Hüb., Verz. Bek. Schmett., p. 28, (1816).

Arg. Phaetonta, Godt., Enc. Meth., IX, p. 288, (1819).

Mel. Phadon, H-S., Prodr. Syst. Lep. Reg. Corr.-Blatt, p. 105, (1865).

- ‡ab. a. ♂ SUPERBA, NOB.—Upper surface differs but little from the ordinary form, except that the two rows of submarginal white spots of secondaries are confluent, forming but one row of wedge-shaped marks with the points towards the base. Underneath the whole space, comprising the greater part of the wing, between the ferruginous basal patches and narrow margin of same colour, is pure white, with the venation black. Taken by Mr. Geo. D. Hulst on Long Island, N.Y., in 1875. Mus. Streck.

Larva on *Chelone Glabra*, *Lonicera Ciliata*.

250. LEANIRA, BDL., MSS. Feld., Wien. Ent. Mon., IV, p. 106, (1860); Reise Nov., II, t. 50, f. 13, 14, (1867); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 91, (1863); Bdl., Lep. Cal., p. 57, (1869); Kirby, Cat., p. 171, (1871); Mead, Wheeler's Rep., V, p. 759, t. 37, (1875); (*Thessalia L.*) Scud., Buff. Bull., II, p. 265, (1875).

- var. a. OBLITERATA, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., VI, (1876).

Under surface of primaries without the abbreviated apical black submarginal band. Under side of secondaries uniform whitish yellow, destitute of all the black marks and bands of normal form.

Larva on *Cordylanthus Pilosus*.

251. THEONA, MEN., *En. An. Mus. Petr. Lep.*, I, p. 86, t. 2, (1855); (*Phyc. T.*) Kirby, *Cat.*, p. 173, (1871); S. California; S. W. Texas; (*Thessalia T.*) Seidl., *Buff. Bull.*, II, p. 265, (1875). Cent. Am.
- †*252. THEKLA, W. H. EDWDS., *Trans. Am. Ent. Soc.*, III, p. 191, (1870); (*Thessalia T.*) Seidl., *Buff. Bull.*, II, p. 265, (1875). S. California; Arizona.

The first fifteen species constitute a group unknown to the old world fauna, but abounding in tropical America where many of the forms are most remarkable, wonderfully counterfeiting in appearance the various *Aceroidae* and *Heliconidae*, with which they associate. Various authors have placed them in Hubner's genus *Phyciodes*, equivalent to Bdl.'s *Eresia*, but I think the grounds are too insufficient to entitle them to any higher position than that of a group.

M. Harrisii forms a very natural transition from this to the *Athalia* group here represented by *Palla* and varieties. *M. Whitneyi* has an amazing resemblance to the S. Eur. *Dejone*, II-G. *Minuta* is exceedingly close to the Russian *Ardinna*, Esp., v. *Atherie*, Hub., and allied species.

Anicia, *Quino* and *Chalcedona* are near to *Maturna*, L., *Artemis*, Hub., etc.

Leanira and allies have no old world representative, though in appearance, especially of under surface, *M. Iduna*, Dalm., bears a close resemblance indeed in the disposition of the markings.

The group of *Tharos*, etc., is represented most abundantly east of the Rocky Mts., whilst of the group of *Anicia* and *Chalcedona* we have only the one eastern representative, *Phaeton*.

M. Eurytion and *M. Culydon*, mentioned by Mr. Mead on pp. 759, 760 of Wheeler's Rep., V, (1875), were from MSS. of W. H. Edwds., but the description has never been published. *Eurytion*=*Nubigena*, and *Culydon*=some one of the forms of *Palla*.

GENUS 6. SYNCHLOE, BDL.

253. ADJUTRIX, SCUD., (*Chlosyne A.*), *Buff. Bull.*, II, p. 269, (1875). Texas.
- Syn. Lacinia*, W. H. Edwds., (*nec Hüb.*), *Butt. N. Am.*, I, *Syn.*, p. 18, (1872).
254. MEDIATRIX, FELD., *Reise Nov.*, II, p. 395, n. 584, (1867); (*Coatlantona M.*) Kirby, *Cat.*, p. 178, (1871); (*Chlosyne M.*) Seidl., *Buff. Bull.*, II, p. 269, (1875). Texas, Bogota.
- Syn. Saundersii*, W. H. Edwds., (*nec Dbldy.*), *Butt. N. Am.*, I, *Syn.*, p. 18, (1872).
- Between *Saundersii*, Dbldy., and *Lacinia*, Geyer.
255. JANAS, DRU., (*Pap. J.*), *Ill. Ex. Ent.*, III, t. 17, f. 5, 6, (1782); (*Nymphalis J.*) Godt., *Enc. Meth.*, IX, p. 392, (1823); (*Syn. J.*) Dbldy.-Hew., *Gen. Diur. Lep.*, I, p. 186, (1846-1850); (*Coatlantona J.*) Kirby, *Cat.*, p. 178, (1871); (*Chlosyne J.*) Seidl., *Buff. Bull.*, II, p. 269, (1875). Texas; Mexico; Cent. Am.

256. ERODYLE, BDL., Bates, Ent. Mon. Mag., I, p. 84, (1864); Texas; Cent. Dbldy.—Hew., Gen. Diur. Lep., p. 186, (1846—America; 1850); (*Coatlantona E.*) Kirby, Cat., p. 178, (1871); ? Mexico. (*Chlosyne E.*) Scud., Buff. Bull., II, p. 269, (1875).
257. CROCALE, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. Arizona. 17, (1874); Mead, Wheeler's Rep., V, p. 765, t. 37, (1875); (*Chlosyne C.*) Scud., Buff. Bull., II, p. 269, (1875).

GENUS 7. EUREMA, DBLDY.

258. LETHE, FABR., (*Pap. L.*), Ent. Syst., III, 1, p. 80, (1793); Texas; Mexico; Don., Ins. Ind., t. 23, (1800); (*Vanessa L.*) Godt., ico; Cent. Enc. Meth., IX, Sup., p. 818, (1823); (*Eur. L.*) Am., Brazil, Dbldy.—Hew., Gen. Diur. Lep., p. 194, (1846— etc. 1850); (*Hypanartia L.*) Kirby, Cat., p. 180, (1871); Scud., Buff. Bull., II, p. 251, (1875).
Hyp. Demonica, Hüb., Sam. Ex. Schmett., II, f. 1, 2, (1806—1827); figs. 3, 4 on same plate represent *Zabulina*, Godt.

GENUS 8. VANESSA, FABR.

(*Grapta*, Kirby, Faun. Am. Bor.)

259. INTERROGATIONIS, FABR., (*Pap. I.*), Ent. Syst., Sup., p. Labrador, 424, (1798); (*Cynthia I.*) Ill. Mag. Ins., VI, p. Canada, 281, (1807); (*Vanessa I.*) Godt., Enc. Meth., IX, United States Suppl., p. 819, (1823); Harris, Hitch. Rep. Geo. east of the Min., etc., Mass., Ed. 1, p. 590, (1833); (*Grapta I.*) Rocky Mts. Dbldy.—Hew., Gen. Diur. Lep., p. 197, (1846— 1850); Morris, Syn., p. 53, (1862); (*Vanessa I.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 298, f. 124, (1862); Pack., Guide, p. 259, (1869); (*Grapta I.*) Lint., Trans. Am. Ent. Soc., II, p. 317, (1869); l. c., III, p. 197, (1870); W. H. Edwds., Butt. N. Am., I, t. V, *Grapta*, (1871); (*Vanessa I.*) Kirby, Cat., p. 181, (1871); (*Polygonia I.*) Scud., Syst. Rev. Am. Butt., 10, (1872); Buff. Bull., II, p. 251, (1875).
Grapta Fabricii, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 5, (1870); Lint., l. c., p. 197, (1870); (*Van. F.*) Kirby, Cat., p. 181, (1871).
Grapta Interrogationis var. *Fabricii*, W. H. Edwds., Butt. N. Am., I, t. V, *Grapta*, (1871).
var. a. UMBROSA, LINT., (*Grapta U.*), Trans. Am. Ent. Soc., II, p. 313, (1869); W. H. Edwds., Butt. N. Am., I, t. 4, *Grapta*, (1871); (*Van. U.*) Kirby, Cat., p. 648, (1871); (*Polygonia U.*) Scud., Buff. Bull., II, p. 251, (1875).
Pap. C Aureum, Cram., Pap. Ex., I, t. 19, E, F, (1779); Herbst, Natursyst. Ins. Schmett., VII, t.

162, f. 1, 2, (1794); Ab.-Sm., Ins. Ga., I, p. 22, t. 11, (1797); (*Polygonia C. A.*) Hüb., Sam. Ex. Schmett., II, (1806-1824); Verz. Bek. Schmett., p. 36, (1816); (*Van. C. A.*) Bdl.-Lec., Lep. Am. Sept., p. 192, t. 51, (1833).

Van. Interrogationis, Godt., Enc. Meth., IX, p. 301, (1819); Emm., Agr. Nat. Hist. N. York, p. 207, t. 35, (1854).

Grapta Crameri, Scud., Proc. Bost. Soc. Nat. Hist., XIII, p. 276, (1870); (*Nymphalis C.*) Kirby, Cat., p. 648, (1871).

Upper surface of inferiors bluish black.

Larva on nettle, hops, elm.

There has been any amount of confusion in regard to this species, all evidently having its origin in the fact of Fabricius' apparent non-acquaintance with the true *C. Aureum* of Linn. (*Angelica*, Cram.), Linn.'s diagnosis of the latter species in Syst. Nat., is "*C. aureum*, 169, P, N, alis angulatis fulvis nigro-maculatis: posticis subtus C. aureo notatis.

Habitat in Asia.

Simillimus P. C. albo, sed duplo major, subtus magis luteo nebulosus C. aureo minori notatis."

This is plain enough; neither *Interrogationis* nor var. *Umbrosa* are cloudy yellow beneath, but *C. Aureum* most undoubtedly is.

Fabricius in Syst. Ent., p. 506, cites *C. Aureum* as the Asiatic species from Linn., Syst. Nat., p. 778, Ed. 12.

In the Sp. Ins., II, p. 94, he again gives it as Linn.'s Asiatic species from Syst. Nat., p. 778, (*Angelica*, Cram., t. 388, Vol. IV), and cites as a synonym Cramer's other figure (*C. Aureum*, Cram., t. 19, Vol. I), which represents the var. of the N. Am. *Interrogationis*, now known as *Umbrosa*.

In Mant. Ins., II, p. 50, he again quotes from the Syst. Nat. Linn.'s description of the Asiatic species, substituting, however, the words "*alis dentato candelatis*" for "*alis angulatis*."

In Ent. Syst., III, I, p. 78, he quotes Linn. altered in the same way, and refers again to Cramer's N. Am. *C. Aureum* (t. 19, Vol. I) as a synonym.

Cramer in his text to the figure of our N. Am. species (t. 19) also makes the same mistake and cites it as Linn.'s Asiatic species, i. e., "Linn., Syst. Nat., XII, p. 778, n. 169 Pap. Nymph. phalerat. C. aureum," whilst the real species described by Linn., in the foregoing, Cramer figured on his t. 388 as another species under the name of *Angelica*.

Herbst in Vol. 7, t. 142, has copied Cramer's figure of our N. Am. species, but in the text he quotes Linn.'s diagnosis of the Asiatic species as altered by Fabricius in the Mant. Ins. and Ent. Syst. He also cites Fabricius' various works and Cramer's t. 19. Its fatherland he gives as Asia.

Abbot's upper figure (t. 11, Vol. I) *C. Aureum* is *Umbrosa* without doubt. The lower figure will do for either *Umbrosa* or *Interrogationis* equally as well, as it is equally as like and unlike either.

Hübner's figures (II, Sam. Exot. Schmett.) are first-rate representations of *Umbrosa*.

Bdl.-Lec.'s figure I represents a form between *Interrogationis* and its var. *Umbrosa*, of which I have an example that is as near one as the other.

In Constable's Miss. Butt., III, t. 11, is figured the "American Comma butterfly, Papilio C. aureum. Virginia." It is evidently an atrocious figure of *Faunus*, or perhaps of *Comma*, certainly not *Interrogationis*. He cites "Abbot, t. 11," but there is no resemblance to the latter figure.

260. COMMA, HARRIS, *Ins. Inj. Veg.*, Ed. 1, p. 221, (1842); Canada, Flint's Ed., p. 300, t. 4, (1862); (*Grapta* C.) British Columbia, N. Dbldy.-Hew., *Gen. Diur. Lep.*, I, 197, (1846-1850); (*Van. C.*) Emms., *Agr. Nat. Hist. N. Y.*, p. 208, (1854); Morris, *Syn.*, p. 54, (1862); Lint., *Proc. Ent. Soc., Phil.*, III, p. 55, (1864); (*Grapta* C.) Reak., *Proc. Ent. Soc., Phil.*, V, p. 143, (1866); W. H. Edwds., l. c., I, p. 182, (1862); Butt. N. Am., I, t. 2, *Grapta*, (1871); (*Polygonia* C.) Scud., *Syst. Rev. Am. Butt.*, 10, (1872); *Buff. Bull.*, II, p. 251, (1875).
Van. C. Album, *Bdl.-Lec.*, *Lep. Am. Sept.*, p. 190, (1833); Fitch, N. Y. State Agr. Soc., p. 432, (1856).
Grapta Harisii, W. H. Edwds., *Can. Ent.*, V, p. 184, (1873).
 var. a. DRYAS, W. H. EDWDS., *Trans. Am. Ent. Soc.*, III, p. 17, (1870); Butt. N. Am., I, t. 3, *Grapta*, (1871); (*Nymphalis D.*) Kirby, *Cat.*, p. 648, (1871); (*Polygonia D.*) Scud., *Buff. Bull.*, II, p. 251, (1875).
 Upper surface inferiors blackish.
 Larva on hops, elm, nettle.
261. C-ALBUM, LINN., (*Pap. C.*), *Syst. Nat.*, Ed. X, p. 477, Canada; (1758), Ed. XII, I, 2, p. 778, (1867); Faun. Succ., British Columbia to the p. 279, (1761); Scop., *Ent. Carn.*, p. 146, (1763); Pacific; N. Fabr., *Syst. Ent.*, p. 506, (1775); *Spec. Ins.*, II, p. 93, (1781); *Mant. Ins.*, II, p. 50, (1787); *Ent. Eng., Middle and Atlantic* *Syst.*, III, 1, p. 124, (1793); *Esp.*, Schmett., I, 1, t. 13, (1777), I, 2, t. 59, (? 1780); *Bergs., Nom.*, t. 38, (1779); *Brk., Natur. Schmett.*, I, p. 15, 203, States south to the Carolinas, west to the Rocky (1788); *Hüb., Eur. Schmett.*, I, f. 92, 93, (1793), also in another vol. larva and pupa, but not numbered; *Herbst, Natursyst. Ins. Schmett.*, VII, p. 50, t. 161, (1794); *Willh., Unterh. Naturg. Ins.*, II, p. 109, t. 13, (1797); *Don., Brit. Ins.*, VI, p. 45, t. 199, (1797); (*Pap. Nymph. C.*) Schaeff., *Icon.*, II, t. 147; vol., text, p. 140, (1804); (*Pap. C.*) Ochs., *Schmett.*, I, 1, 125, (1807); (*Van. C.*) Godt., *Enc. Meth.*, IX, p. 302, (1819); *Hist. Nat. Lepid.*, I, p. 85, t. 5, f. 3, t. 5 tert. f. 1, (1821); *Steph., Ill. Brit. Ins. Haust.*, I, p. 42, (1828); *Bdl.-Lec.*, *Lep. Am. Sept.*, p. 190, (1833); *Lucas, Pap. Ent.*, p. 60, t. 2, (1834); *Dun., Nat. Libr. Ent.*, III, p. 160, t. 17, (1835); *Humph.-West., Brit. Butt.*, p. 50, t. 13, (1841); (*Tachyptera C.*) Berge, *Schmett.-buch.*, p. 98, t. 44, f. 4a-4d, (1842); (*Van. C.*) H-S., *Schmett. Eur.*, I, f. 159, 160, (1844); *Dup., Icon. Hist. Nat.*, I, p. 102, t. 11, *Lar.*, (1849); (*Grapta C.*) Chenu, *Pap. Diur.*, I, t. 26, f. 5 & f. 206, p. 99, (1851-1853); Morris, *Syn.*, p. 55, (1862); (*Van. C.*) Stgr., *Cat.*, p. 16, (1871); Kirby, *Cat.*, p. 182, (1871).
 Mts.

- Pap. G album*, Fourc., Ent. Paris., II, p. 235, (1785).
Van. Comma alba, Mill., Brit. Ent., t. I, (1821).
Grapta Faunus, W. H. Edwards., Proc. Acad. Nat. Sc., Phil., p. 222, (1862); Proc. Ent. Soc., Phil., I, p. 183, (1862); Butt. N. Am., I, t. 1, Grapta, (1869); (*Van. F.*) Kirby, Cat., p. 182, (1871); (*Grapta F.*) Caulfield, Can. Ent., VII, p. 49, (1875); (*Polygonia F.*) Scud., Syst. Rev. Am. Butt., 10, (1872); Buff. Bull., II, p. 252, (1875).
 ———, *Petiv.*, Pap. Brit. Icon., etc., p. 2, t. IV, f. 5-12, (1717).
 ———, *Merian*, Eur. Ins., I, t. 14, (1730).
 ———, *Seba*, Thes., IV, t. 1, f. g1-g5, (1765).
 ———, *Engr.*, Pap. Eur., I, p. 14, t. V, f. 5a-5f, (1779).

After continued and most careful examination of great numbers of *C Album* from various parts of Europe, and also of the so-called species *Faunus* from the United States and Canada, as well as examples from the Amoor region and Japan, I cannot pronounce them distinct. The American examples are apparently less subject to variation than their European congenors, but there is no certain point of sufficient stability to entitle them to specific distinction.

The dark exterior border on upper surface of wings is generally deeper in colour and more inclined to blackish in the N. Am. examples, and the spots enclosed in that of secondaries are inclined to be smaller, but neither of these are constant distinctions, as those of the European examples having the borders of outer margins darkest are precisely identical with those of the American examples in which said borders are lighter than the average.

The examples from Japan are notably like the average of those from Canada and N. York, all having that same greenish-blue tinge of under surface which is more peculiar to the latter.

My hope was that *Faunus* might prove constant enough in depth of colour of outer margins of upper surface to allow its being cited as a form or variety of *C Album*, but, as I before said, when the darker European examples are placed aside of the paler American ones, this ceases to be a distinction at all, as we know not where *C Album* ends or *Faunus* begins. Besides, there are in Europe forms of *C Album* that are yellow below, presenting far greater differences from the darker forms of the same than do the most aberrant of the latter from the N. American examples; these yellow examples have analogues in some of the variations of *Comma* and *Satyrus*, which on under side are yellow of various shades from pale ochre to dark orange tawny. As to the before mentioned Japanese examples, they are almost fac-similes of those from America save that they are of average larger size though not larger than the largest of the latter.

Larva on willow (*Salix Humilis*).

var. a. HYLAS, W. H. EDWARDS., (*Grapta H.*), Trans. Am. Ent. Soc., IV, p. 68, (1872); Butt. N. Am., II, t. I, Grapta, (1875); Mead, Wheeler's Rep., V, p. 768, (1875). Colorado.

Polygonia Satyryrus, Scud., Buff. Bull., II, p. 252, (1875).

Smaller; otherwise differing little from the Eastern form

- †*261 a. *RUSTICUS*, W. H. EDWDS., (*Grapta R.*), Trans. Am. Ent. Soc., V, p. 107, (1874). California, Vancouver's Island.
I cannot, by the description, separate this from the preceding species, with which it is probably identical.
262. *SATYRUS*, W. H. EDWDS., (*Grapta S.*), Trans. Am. Ent. Soc., II, p. 374, (1869); Butt. N. Am., I, t. 6, *Grapta*, (1872); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 168, Lar., (1873); Pearson, Can. Ent., VII, p. 216, (1875); Mead, Wheeler's Rep., V, p. 767, (1875); (*Nym. S.*) Kirby, Cat., p. 648, (1871); (*Polygonia S.*) Seud., Buff. Bull., II, p. 252, (1875). Colorado, California, Oregon, Brit. Col., Canada.
- var. a. *MARSYAS*, W. H. EDWDS., (*Grapta M.*), Trans. Am. Ent. Soc., III, p. 16, (1870); Butt. N. Am., II, t. 2, *Grapta*, (1875); (*Nym. M.*) Kirby, Cat., p. 648, (1871); (*Polyg. M.*) Seud., Buff. Bull., II, p. 252, (1875). Rocky Mts.
Under surface dark reddish.
Larva on nettle (*Urtica*).
263. *OREAS*, W. H. EDWDS., (*Grapta O.*), Trans. Am. Ent. Soc., II, p. 373, (1869); l. c., V, p. 109, (1874); (*Van. O.*) Kirby, Cat., p. 183, (1871); (*Polyg. O.*) Seud., Buff. Bull., II, p. 252, (1875). California, Oregon, Vancouver's Island.
Grap. C-Album, Behr, Proc. Cal. Acad. Nat. Sc., III, p. 123, (1864).
Grap. Silenus, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 15, (1870); Butt. N. Am., II, t. 1, *Grapta*, (1874); (*Nym. S.*) Kirby, Cat., p. 648, (1871); (*Polyg. S.*) Seud., Buff. Bull., II, p. 252, (1875).
Larva on *Urtica*.
- †*264. *SILVIUS*, W. H. EDWDS., (*Grapta S.*), Trans. Am. Ent. Soc., V, p. 108, (1874). California.
265. *ZEPHYRUS*, W. H. EDWDS., (*Grapta Z.*), Trans. Am. Ent. Soc., III, p. 16, (1870); Butt. N. Am., I, t. 6, *Grapta*, (1872); (*Nym. Z.*) Kirby, Cat., p. 648, (1871); (*Grap. Z.*) Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 169, Lar., (1873); Mead, Wheeler's Rep., V, p. 769, (1875); (*Polyg. Z.*) Seud., Buff. Bull., II, p. 252, (1875). Colorado, Nevada, Montana, California, Oregon, Utah.
Polyg. Thiodamas, Seud., Buff. Bull., II, p. 252, (1875).
Larva on *Azalea Occidentalis*.
- var. a. *GRACILIS*, G.-R., (*Grapta G.*), Ann. N. Y. Lyc. Nat. Hist., VIII, p. 432, (1867); (*Van. G.*) Kirby, Cat., p. 182, (1871); (*Grap. G.*) Streck., Lep., Rhop.-Het., p. 68, t. 8, (1873). Canada, Maine, White Mts., N. Hampshire.
Grap. C-Argentum, Seud., Proc. Ess. Inst., III, p. 169, (1862).
Grap. Faunus, Seud., Buff. Bull., II, p. 252, (1875).
Larva on willow (*Salix Humilis*).
Basal third of under surface of wings deep reddish brown or claret coloured.

266. PROGNE, CRAM., (*Pap. P.*), *Pap. Ex.*, I, t. 5, (1775); Fabr., *Gen. Ins.*, p. 264, (1777); *Sp. Ins.*, II, p. 93, (1781); *Ent. Syst.*, III, 1, p. 124, (1793); Herbst, *Natursyst. Ins.* Schmett., VII, p. 61, t. 163, (1794); (*Polygonia P.*) Hüb., *Verz. Bek.* Schmett., p. 36, (1816); (*Van. P.*) Godt., *Enc. Meth.*, IX, p. 304, (1819); Bdl.-Lee., *Lep. Am. Sept.*, p. 188, t. 50, (1833); (*Grapta P.*) Dbldy.-Hew., *Gen. Diur. Lep.*, I, p. 197, (1846-1850); (*Van. P.*) Emm., *Agr. Nat. Hist. N. York*, p. 207, (1854); Fitch, *Rep. N. York State Agr. Soc.*, p. 428, (1856); Morris, *Syn.*, p. 56, (1862); Harris, *Ins. Inj. Veg.*, Flint's Ed., p. 301, (1862); (*Grapta P.*) Lint., *Proc. Ent. Soc., Phil.*, III, p. 58, *Lar.*, (1864); Reak., *Proc. Ent. Soc., Phil.*, VI, p. 143, (1866); Pack., *Guide*, p. 260, f. 188, (1869); (*Van. P.*) Kirby, *Cat.*, p. 182, (1871); Stgr., *Cat.*, p. 16, (1871); (*Polygonia P.*) Scud., *Syst. Rev. Am. Butt.*, 10, (1872); Buff. Bull., II, p. 253, (1875).
Pap. Grogue, Fabr., *Mant. Ins.*, II, p. 50, (1787).
Grapta C Argenteum, Kirby, *Faun. Bor. Am.*, IV, p. 292, t. 3, f. 6, 7, (1837).
 var. a. L-ARGENTEUM, SCUD., (*Polygonia L.*), Buff. Bull., II, p. 253, (1875).
 Upper surface of secondaries mostly blackish.
 Larva on cultivated and wild currant, and wild gooseberry (*Ribes Rotundifolium*).
267. VAU-ALBUM, WIEN. VERZ., (*Pap. V.*), p. 176, (1776); (*Van. V.*) Kirby, *Cat.*, p. 184, (1871).
Pap. V. Album, Fabr., *Mant. Ins.*, II, p. 50, (1787); *Ent. Syst.*, III, 1, p. 122, (1793); Hüb., *Eur. Schmett.*, I, f. 83, 84, (? 1793), *Nymph. C. c.*, *Lar.*; Ochs., *Schmett. Eur.*, I, 1, p. 112, (1807); (*Eugonia V.*) Hüb., *Verz. Bek.* Schmett., p. 36, (1816); (*Van. V.*) Godt., *Enc. Meth.*, IX, p. 306, (1819); Dup., *Hist. Nat. Lep.*, I, 23, 1, 2, (1832); Bdl., *Icon.*, I, 24, (1832); *Sp. Gen.*, I, t. 10, f. 1, (1836); Lucas, *Pap. Eur.*, p. 59, t. 3, (1834); (*Tachyptera V.*) Berge, *Schmett.*, t. 45, (1842); (*Van. V.*) Dup., *Icon. Hist. Nat.*, I, p. 104, t. 11, *Lar.*, (1849).
Pap. L Album, Esp., *Schmett.*, I, 2, t. 62, (1780); Schn., *Syst. Besch.*, I, p. 163, (1787); Bkh., *Nat. Schmett.*, I, pp. 17, 204, (1788); Herbst, *Natursyst. Ins.* Schmett., VII, p. 56, t. 162, (1794); H-S, *Syst. Bearb. Schmett. Eur.*, p. 40, (1843); Stgr., *Cat.*, p. 16, (1871).
Pap. Polychlorus, Cram., (*nec L.*), *Pap. Ex.*, IV, t. 330, (1782); (*Van. P.*) Emm., *Agr. Nat. Hist. N. Y.*, V, p. 208, (1854).
Van. J album, Bdl.-Lee., *Lep. Am. Sept.*, p. 185, t. 50, (1833); Morris, *Syn.*, p. 56, (1862); Harris, *Ins. Inj. Veg.*, Flint's Ed., p. 298, (1862); (*Grapta*
- Northern U. S. to the Rocky Mts.; Canada, Labrador, British Columbia, Kamtschatka, Siberia, Japan.
- Northern U. States east of the Rocky Mts.; Canada, Labrador; British Columbia to the Pacific; Siberia, Russia, Hungary, Germany.

J.) Lint., Proc. Ent. Soc., Phil., III, p. 58, Lar., (1864); (*Nymphalis J.*) Scud., Syst. Rev. Am. Butt., II, (1872); (*Eugonia J.*) Scud., Buff. Bull., II, p. 253, (1875).

Van. Urticeæ, Harris, (nec J.), Hitch. Rep. Geo. Min., etc., Ed. 1, p. 520, (1833).

Larva on willow.

There is a slight tendency to suffusion in the black marks of upper surface in the American examples; and towards the exterior margins of upper surface of secondaries the colour is a little paler, but these trivial and scarce constant differences can be considered by no means sufficient to separate them specifically from the European examples.

268. CALIFORNICA, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 306, (1852); Morris, Syn., p. 58, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 123, (1864); Pack., Guide, p. 259, (1869); Kirby, Cat., p. 184, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 171, Lar., (1875); Mead, Wheeler's Rep., V, p. 769, (1875); (*Eugonia C.*) Scud., Buff. Bull., II, p. 253, (1875).

Larva on *Ceanothus Thyrsiflorus*.

269. MILBERTI, GODT., Enc. Meth., IX, p. 307, (1819); Ball.—Lee., Lep. Am. Sept., p. 187, t. 50, (1833); Dbldy.—Hew., Gen. Diur. Lep., I, p. 201, t. 26, (1846–1850); Harris, Ins. Inj. Veg., Flint's Ed., p. 302, f. 125, (1862); Morris, Syn., p. 56, (1862); Lint., Proc. Ent. Soc., Phil., III, p. 61, Lar., (1864); Reak., l. c., VI, p. 143, (1866); Saund., Can. Ent., I, p. 76, (1869); Kirby, Cat., p. 143, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., Lar., (Oct. 6, 1873); (*Aglaïs M.*) Scud., Syst. Rev. Am. Butt., p. 21, (1872); Buff. Bull., II, p. 251, (1875).
- Van. Fuvillata, Say, Am. Ent., II, t. 27, (1825); (Pap. F.)* Brown, Const. Mis. Butt., I, p. 180, t. 40, (1832); Kirby, Faun. Bor. Am., IV, p. 292, (1837).
- Van. Milbertii, Pack.,* Guide, p. 259, (1869); Mead., Wheeler's Rep., V, p. 769, (1875).
- Larva on nettles (*Urticæ*).

California, Oregon.

Labrador, Canada, Brit. Columbia, N. Eng. States, N. York, Penna., Ohio, Michigan, Ind., Ill., Missouri, Wisconsin, Iowa, Colorado, Montana, Nevada, California, Oregon.

Emmons, in Agr. Nat. Hist. N. Y., V, p. 209, t. 46, (1854), describes and figures *V. Urticeæ*, stating that it occurred in N. York,—of course erroneously, as no authenticated instance of its capture in this country is known.

270. ANTIOPA, LINN., (*Pap. A.*), Syst. Nat., Ed. X, p. 476, (1758); Faun. Succ., p. 277, (1761); Syst. Nat., Ed. XII, I, 2, p. 776, (1767); Pod., Ins. Mus. Græc., p. 71, (1761); Scop., Ent. Carn., p. 148, n. 419, (1763); Fabr., Syst. Ent., p. 503, (1775); Sp. Ins., II, p. 89, (1781); Mant. Ins., II, p. 48, (1787); Ent. Syst., III, 1, p. 115, (1793); Esp., Schmett., I, 1, t. 12, (1777), t. 29, (1778); Bergstr., Nom., t. 39, t. 112, (1779); Brk., Natur. Schmett.,

In all parts of N. Am. except the Polar region; Europe, Siberia.

- I, pp. 11, 195, (1788); Hüb., Eur. Schmett., I, f. 79, 80, (1793), on t. Nym. C a., also Lar.; Herbst, Natursyst. Ins., VII, p. 96, t. 166, (1794); Don., Nat. Hist. Brit. Insects, III, p. 45, t. 89, (1794); Willh., Unt. Nat. Ins., II, p. 91, t. 12, (1797); (*Nymph. A.*) Latr., Hist. Nat. Crust. et Ins., XIV, p. 83, t. 105, (1805); (*Pap. A.*) Ochs., Schmett., I, 1, 110, (1807); (*Eugonia A.*) Hüb., Verz. Bek. Schmett., p. 37, (1816); (*Aglais A.*) Dalm., Ventsk. Acad. Handl., 64, (1816); (*Van. A.*) Godt., Enc. Meth., IX, p. 308, (1819); Steph., Ill. Brit. Ent. Haust., I, p. 45, (1828); (*Pap. A.*) Brown, Const. Mis. Butt., Vol. I, p. 160, t. 26, (1832); (*Van. A.*) Bll.-Lee., Lep. Am. Sept., p. 173, (1833); Lucas, Pap. Eur., p. 58, t. 1, (1834); Duncan, Nat. Lib. Ent., III, p. 168, t. 18, (1835); Kirby, Faun. Bor. Am., IV, p. 293, (1837); (*Tachyptera A.*) Berge, Schmett., p. 99, t. 44, (1842); (*Van. A.*) Emm., Agr. Nat. Hist. N. York, V, p. 20, t. 6, (1854); Humphreys, Brit. Butt., p. 53, t. 14, (1841); Harris, Ins. Inj. Veg., Flint's Ed., p. 296, f. 121, 122, (1862); Morris, Syn., p. 57, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 125, (1864); Lint., Proc. Ent. Soc., Phil., III, p. 59, Lar., (1864); Reak., l. c., VI, p. 143, (1866); Pack., Guide, p. 258, (1869); Saund., Can. Ent., I, p. 75, Lar., (1869); Stgr., Cat., p. 16, (1871); Kirby, Cat., p. 183, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., Lar., (Oct. 6, 1873); Mead, Wheeler's Rep., V, p. 769, (1875); (*Pap. A.*) Scud., Buff. Bull., II, p. 254, (1875).
- Pap. Pompadour*, Poll., Bemerk. Churpf. Oek. Ges., (1779).
- Pap. Morio*, Linn., Faun. Succ., Ed. 1, p. 232, (1746); Retz., Gen. et Sp. Ins., 31, (1783); (*Van. M.*) Godt., Hist. Nat. Lep., I, p. 93, t. 5, (1821).
- , *Scba*, Thes., IV, p. 39, t. 32, f. 1, 2, (1765).
- , *Engr.*, Pap. Eur., I, p. 1, t. 1, (1779).
- ab. a. *HYGIÆA*, HÉRCH., Verz. Eur. Schmett., p. 7, (1851); Stgr., Cat., p. 17, (1871); Kirby, Cat., p. 183, (1871); (*Pap. H.*) Scud., Buff. Bull., II, p. 254, (1875).
- Pap. Antiopa*, Hüb., Eur. Schmett., I, f. 993, (1829–1841); (*Van. A.*) Frey., Neu. Beit., II, t. 145, (? 1835)
- Van. Antiopa* var., Mill., Icon. Chen. et Lep., X, p. 420, t. 94, (1868).
- Van. Lintherii*, Fitch, 3d Rep. Trans. N. York State Agr. Soc., p. 485, (1856); Morris, Syn., p. 57, (1862); Streek., Lep., Rhop.-Het., p. 7, (1872); Bunker, Can. Ent., VIII, p. 240, (1876).
- , *Engr.*, Pap. Eur., I, t. 1, f. 1f, (1779).

The yellow border much broader, extending over the space that in the normal form is occupied with the row of blue spots, these latter either entirely wanting or else faint traces of them are on the secondaries only, as in Hubner's and Milliere's figures. In one example I have seen the yellow border encroached to such an extent as to cover nearly the whole outer half of all wings.

†alb. b. ♀—With the border on upper side of primaries black instead of yellow. Mus. Strech.

Herbst, on t. 168, Vol. VII, figures another aberration of great size with white border to the wings and the blue spots enormously large.

In Seba, Vol. IV, (1765), t. 32, f. 5, 6, another is represented in which the white marks on outer part of primaries at costa are entirely wanting, and on the under surface the dark colour of all wings is uniform, devoid of all marbling or reticulation; this example is, I believe, still in existence in the St. Petersburg Museum.

Larva on willow, elm, poplar.

W. Hoboken, N. Jersey.

GENUS 9. PYRAMEIS, HUB.

271. ATALANTA, LINN., (*Pap. A.*), Syst. Nat., Ed. X, p. 478, (1758), Ed. XII, I, 2, p. 779, (1767); Faun. Suec., p. 279, (1761); Pod., Ins. Mus. Graec., p. 72, (1761); Scop., Ent. Carn., p. 148, (1763); Fabr., Syst. Ent., p. 504, (1775); Sp. Ins., II, p. 90, (1781); Mant. Ins., II, p. 49, (1787); Ent. Syst., III, 1, p. 118, (1793); Esp., Schmett. Eur., I, 1, t. 14, (1777); Bergs., Nom., t. 20, (1779); Brk., Natur. Schmett., I, pp. 12, 196, (1788); Hüb., Eur. Schmett., I, f. 75, 76, (? 1793), Nymph. C a., f. a, b, Lar.; Herbst, Natursyst. Ins. Schmett., VII, p. 171, t. 180, f. 3, 4, (1794); Will., Unt. Nat. Ins., II, p. 118, t. 15, (1797); Don., Brit. Ins., VIII, p. 19, t. 260, (1799); (*Pap. Nym. A.*) Schaeff., Icon., II, t. 148, vol. of text, p. 141, (1804); (*Nymph. A.*) Latr., Hist. Nat. Crust. et Ins., XIV, p. 86, (1805); (*Pap. A.*) Ochs., Schmett. Eur., I, 1, 104, (1807); (*Pyram. A.*) Hüb., Verz. Bek. Schmett., p. 33, (1816); (*Aglais A.*) Dalm., Vetenensk. Acad. Handl., 55, (1816); (*Libythea A.*) Lamarck, Hist. Anim. sans Vert., IV, 29, (1817); (*Van. A.*) Godt., Enc. Meth., IX, p. 319, (1819); Hist. Nat. Lep., 1, p. 99, t. 6, (1821); Steph., Ill. Brit. Ent. Haust., 1, p. 46, (1828); (*Van. A.*) Bdl.-Lec., Lep. Am. Sept., p. 175, (1833); Lucas, Pap. Eur., p. 57, t. 1, (1834-35); (*Cynthia A.*) Harris, Hitch. Rep. Min. Geo., etc., Mass., Ed. 1, p. 390, (1833); (*Van. A.*) Duncan, Nat. Lib. Ent., III, p. 170, t. 20, (1835); (*Tachyptera A.*) Berge, Schmett., p. 100, t. 45, (1842); (*Van. A.*) Emml., Agr. Nat. Hist. N. York, V, p. 209, (1854); (*Cynthia A.*) Humph., Brit. Butt., p. 55, t. 15, (1841); Harris, Ins. Inj. Veg., Flint's Ed., p. 294, f. 120, (1862);
- Whole of N. America except the Polar region; Europe, N. Africa.

(*Pyram. A.*) Morris, Syn., p. 58, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 125, (1864); Pack., Guide, p. 261, (1869); Kirby, Cat., p. 185, (1871); (*Van. A.*) Stgr., Cat., p. 17, (1871); (*Pyram. A.*) Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, Lar., (Oct. 6, 1873); Mead, Wheeler's Rep., V, p. 770, (1875); (*Van. A.*) Seud., Buff. Bull., II, p. 254, (1875).

Pap. Amiralis, Retz., Gen. et Sp. Ins., 31, (1783).

_____, *Merian*, Eur. Ins., t. 91, (1730).

_____, *Seba*, Thes., IV, p. 6, t. 1, f. D.1-D.4, (1765).

_____, *Engr.*, Pap. Eur., p. 17, t. 6, (1779).

Larva on nettles (*Urtica*), hops (*Humulus Lupulus*), *Boehmeria Cylindrica*.

This species is very seldom subject to any great variation. I have seen no example in this country showing any remarkable aberrancy.

On t. 86, f. 4, Esper figures a most wonderful variety which was taken in Tyrol. This figure has been copied by Herbst in his Vol. VII, t. 180, and also by other European authors. Herr-Sch. also figures a most extraordinary form (in Vol. I, f. 547, 548). In the figures above cited the whole style of ornamentation is changed.

Milliere, in his Icon., X, t. 88, (1867), figures a curious form in which all the bands that are orange, normally, are here brownish or greyish white and semidiaphanous.

272. CARDUI, LINN., (*Pap. C.*), Syst. Nat., Ed. X, p. 475, (1758), Ed. XII, p. 774, (1767); Faun. Succ., p. 276, (1761); Scop., Ent. Carn., p. 150, (1763); Fabr., Syst. Ent., p. 499, (1775); Sp. Ins., II, p. 82, (1781); Mant. Ins., II, p. 45, (1787); Ent. Syst., III, 1, p. 104, (1793); Esp., Schmett., I, 1, t. 10, (1777); Bergstr., Nom., t. 62, (1779); Brk., Natur. Schmett., I, p. 199, (1788); Hüb., Eur. Schmett., I, f. 73, 74, (? 1793), Nymph. C. a, f. 1a, b, c, Lar.; Wilh., Unt. Nat. Ins., II, p. 77, t. 9, (1797); Don., Brit. Ins., IX, p. 9, t. 292, (1800); (*Pap. Nymph. C.*) Schaeff., Icones, I, t. 97, vol. of text, p. 108, (1804); (*Nymph. C.*) Latr., Hist. Nat. Crust. et Ins., XIV, p. 87, (1805); (*Cynthia C.*) Fabr., Ill. Mag. Ins., VI, 281, (1807); (*Van. C.*) Ochs., Schmett. Eur., I, 1, 102, (1807); Hüb., Verz. Bek. Schmett., p. 33, (1816); (*Aglaüs C.*) Daln., Vetensk. Acad. Handl., 65, (1816); (*Libythea C.*) Lamarck, Hist. Anim. sans Vertèbr., IV, 29, (1817); (*Van. C.*) Godt., Enc. Meth., IX, p. 323, (1819); (*Cynthia C.*) Steph., Ill. Brit. Ent. Haust., I, p. 47, (1828); (*Van. C.*) Bdl.-Lec., Lep. Am. Sept., p. 178, (1833); Bdl., Faun. Ent. Mad., p. 43, (1834); (*Cynthia C.*) Don., Nat. Lib. Ent., III, p. 174, t. 19, (1835); Kirby, Faun. Bor. Am., IV, p. 295, (1837); Humph., Brit. Butt., p. 56, t. 15, (1841); (*Tachyptera C.*)

N. America except the Polar region; India, Asia Minor, Europe, Africa.

- Berge, Schmett., p. 100, t. 45, (1842); (*Van. C.*) Bdl., App. Voy. de Deleg., p. 592, (1847); (*Pyram. C.*) Dbldy.-Hew., Gen. Diur. Lep., I, p. 205, (1846-1850); Chenu, Enc. Hist. Nat. Pap. Diur., I, f. 215, (1852); (*Van. C.*) Bdl., Ann. Ent. Fr., 2me Ser. X, p. 307, (1852); (*Cynthia C.*) Emm., Agr. Nat. Hist. N. York, V, p. 210, t. 46, (1854); Staint., Man. Brit. Butt., I, p. 37, (1857); (*Pyram. C.*) Horsf.-Moore, Cat. Lep. Mus. E. I. C., p. 138, (1857); (*Cynthia C.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 291, f. 118, (1862); (*Pyram. C.*) Morris, Syn., p. 59, (1862); Trim., Rhop. Afr. Austr., I, p. 119, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 125, (1864); Pack., Guide, p. 261, (1869); Saund., Can. Ent., I, p. 93, Lar., (1869); Kirby, Cat., p. 185, (1871); (*Van. C.*) Stgr., Cat., p. 17, (1871); (*Pyram. C.*) Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, Lar., (Oct. 6, 1873); Mead, Wheeler's Rep., V, p. 770, (1875); (*Van. C.*) Scud., Buff. Bull., II, p. 254, (1875).
- Pap. Belladonna*, *Petr.*, Pap. Brit., p. 2, t. 4, (1717); Linn., Faun. Suec., Ed., I, p. 235, (1746); (*Van. B.*) Godt., Hist. Nat. Lep., I, p. 102, t. 5, (1820); Lucas, Pap. Eur., p. 57, t. 3, (1854).
- Pap. Carduelis*, *Seba*, Thes., IV, p. 6, t. 1, (1765); Cram., Pap. Exot., I, t. 26, f. E, F, (1779).
- , *Merian*, Eur. Ins., t. 116, (1730).
- , *Engr.*, Pap. Eur., p. 20, t. 7, (1779).
- ab. a. ELYMI, RAMB., (*Van. E.*), Ann. Soc. Obs., II, t. 5, f. 1, 2, (1829); Kirby, Cat., p. 186, (1871); Stgr., Cat., p. 17, (1871).
- Van. Cardui*, *var.*, H-S., Schmett. Eur., I, f. 157, 158, (1843).

Normal form of ornamentation obliterated. Upper side of primaries has the basal half covered with an orange yellow blotch; subapical white spots confluent. Secondaries orange yellow; on costal parts blackish, this colour extending along the veins to outer margin; before it reaches the latter this colour broadens into diamond-shaped marks; a submarginal row of white spots. Under side of primaries much as above, but with a broad white submarginal band. Secondaries mottled pale greyish, with a broad white marginal band; in some instances nearly the whole surface of secondaries beneath is white, in others the white predominates on the upper surface to the greater exclusion of the black. Two examples, Mus. Mrs. Bridgman, taken in N. Jersey.

- †ab. b. ATE, NOB.—Upper surface primaries suffused heavily with blackish, the normal markings entirely gone, the orange confined to a blotch on disc on half of wing towards the inner margin, said blotch merging into the blackish on all sides; the large subapical white bar entirely wanting. Secondaries obscured with blackish, the row of black spots faintly discernible and pupilled with white points. Under side primaries much as on upper side, secondaries black except along the abdominal margin where the ordinary colouration and marking is retained; veins white; the six ocelli as in ordinary form; a narrow yellowish or clay coloured margin exteriorly. Body white beneath. Mus. Streck. Taken in Summit Co., Ohio.

Trimen, in Rhop. Afr. Anstr., p. 184, cites an example taken at King William's Town, S. Afr., which, according to his description, agrees with the above var. in almost every particular. Larva on thistles (*Carduus*, *Chicus*, *Circium*), nettle (*Urtica*), *Althaea Rosa*, *Helianthus*, *Malvaceæ*, and some other plants.

273. CARYE, HUB., (*Hamadryas decora* C.), Samm. Ex. California, Schmett., I, (1806–1816); (*Van. C.*) Hüb., Verz. Nevada, Bek. Schmett., p. 33, (1816); (*Pyram. C.*) Dbldy.—Arizona, Hew., Gen. Diur. Lep., I, p. 205, (1846–1850); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 125, (1864); Kirby, Cat., p. 186, (1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., IV, p. 329, Lar., (July 6, 1874); (*Van. C.*) Scud., Buff. Bull., II, p. 255, (1875).

Van. Charie, Blanch., Gay, Faun. Chil., VII, p. 26, t. 2, Atlas, (1852).

Larva on *Malvaceæ* and *Urtica*.

274. HUNTERA, FABR., (*Pap. II.*), Syst. Ent., p. 499, (1775); Canada; U. States and Territories from Atlantic to Pacific; Mexico, Cent. Am., W. Indies.
Sp. Ins., II, p. 83, (1781); Mant. Ins., II, p. 45, (1787); Ent. Syst., III, 1, p. 104, (1793); Herbst, Natursyst. Ins. Schmett., VII, p. 165, t. 178 ♂, 179 ♀, (1794); Ab.-S., Ins. Ga., I, t. 9, (1797); (*Van. H.*) Hüb., Samm. Ex. Schmett., III, (1806–1816); Godt., Enc. Meth., IX, p. 324, (1819); Bdl.-Lee., Lep. Am. Sept., p. 180, t. 48, (1833); (*Cynthia H.*) Harris, Hitch. Rep. Geo. Min., etc., Mass., Ed. I, p. 590, (1833); Humph., Brit. Butt., p. 57, t. 15, (1841); (*Pyram. H.*) Dbldy.—Hew., Gen. Diur. Lep., I, p. 205, (1846–1850); (*Cynthia II.*) Emm., Agr. Nat. Hist. N. Y., V, p. 210, (1854); Harris, Ins. Inj. Veg., Flint's Ed., p. 292, f. 119, (1862); (*Pyram. II.*) Morris, Syn., p. 60, (1862); Lint., Proc. Ent. Soc., Phil., III, p. 63, Lar., (1864); Saund., Can. Ent., I, p. 105, Lar., (1869); Pack., Guide, p. 261, (1869); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, (1873); (*Van. H.*) Scud., Buff. Bull., II, p. 254, (1875).

Pap. Belladonna virginiana oculis subtus minoribus, Petiv., Gazoph., IV, t. 33, f. 5, (1711).

Pap. Cardui Virginicensis, Dru., Ill. Ex. Ent., I, t. 5, (1770).

Pap. Iole, Cram., Pap. Ex., I, t. 12, (1779).

Van. Hunteri, Hüb., Verz. Bek. Schmett., p. 33, (1816).

Pyrameis Virginicensis, Kirby, Cat., p. 186, (1871).

Larva on the various species of *Gnaphalium*.

GENUS 10. JUNONIA, HUB.

275. CÆNIA, HUB., Samm. Ex. Schmett., II, (1816–1824); M., S. and (*Van. C.*) Bdl.-Lee., Lep. Am. Sept., p. 182, t. 49, W. States, (1833); (*Jun. C.*) Morris, Syn., p. 61, (1862); from At. to Behr, Proc. Cal. Acad. Nat. Sc., III, p. 126, (1864); Pac.; Mex.; Pack., Guide, p. 261, (1869); Kirby, Cat., p. 188, Cent. Am.

(1871); Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, Lar., (Oct. 6, 1873); Send., Buff. Bull., II, p. 255, (1875).

Pap. Orythia, Abb.-S., Ins. Ga., I, t. 8, (1797).

Vanessa Lavinia, Godt., Enc. Meth., IX, p. 318, (1819).

Cynthia Lavinia, Harr., (nec Cram.), Hitch. Rep. Geo. Min., etc., Mass., Ed. 1, p. 590, (1833); Ins. Inj. Veg., Flint's Ed., p. 293, (1862).

Larva on *Plantago Lanceolata*, *Gerardia Purpurea*, *Antirrhinum Canadensis*.

Subject to much variation on under side, especially of secondaries, some examples being whitish ochraceous, others claret coloured, some immaculate, others reticulated and with ocelli.

Pap. Lavinia, Cram., I, t. 21, C. D. (1779), is the form found in S. Am. and the Antilles. *Pap. Evarete*, III, t. 203, C. D. (1782), is another S. Am. var. of the same. *Pap. Genovera*, IV, t. 290, E, F, is also a S. Am. form of same. *Hamadryas decora Evarete*, Hub., Sam. Ex., I, is the same S. Am. form as Cram.'s *Evarete*, I, t. 21. The fig. 28, 29, t. 239, Sloane's Jamaica, (1725), represents the same form, or something near it at least, as the one above cited in Cram., I, t. 21.

GENUS 11. ANARTIA, HUB.

276. JATROPHÆ, LINN., (*Pap. J.*), Mus. Lud. Ulr. Reg., p. S. Florida, 289, (1764); Syst. Nat., Ed. XII, I, 2, p. 779, W. Indies, (1767); Joh., Amen. Acad., VI, p. 408, (1764); Texas, Fabr., Syst. Ent., p. 493, (1775); Sp. Ins., II, p. Mexico, 75, (1781); Mant. Ins., II, p. 37, (1787); Ent. Cent. Am., Syst., III, 1, p. 98, (1793); Cram., Pap. Ex., III, Surinam, t. 202, (1782); Herbst, Natursyst. Ins. Schmiett., Brazil, VII, p. 134, t. 172, (1794); (*Hamadryas decora J.*) Hüb., Samm. Ex. Schmiett., I, (1806-1816); (*Anartia J.*) Verz. Bek. Schmiett., p. 33, (1816); (*Van. J.*) Godt., Enc. Meth., IX, p. 297, (1819); (*Anartia J.*) Dbldy.-Hew., Gen. Diur. Lep., I, p. 216, (1846-1850); Morris, Syn., p. 62, (1862); Kirby, Cat., p. 194, (1871); Send., Buff. Bull., II, p. 255, (1875).

———, Merian, Met. Ins. Sur., t. 4, (1719).

———, Gronov, Zooph., 2, p. 197, (1763).

———, Seba, Thes., IV, p. 38, t. 30, f. 19, 20, (1765).

GENUS 12. AGERONIA, HUB.

277. FERONIA, LINN., (*Pap. F.*), Syst. Nat., Ed. X, p. 473, S. W. Texas, (1758); Mus. Lud. Ulr. Reg., p. 283, (1764); Syst. Mexico, Nat., Ed. XII, I, 2, p. 770, (1767); Clerck, Icones, Cent. Am., t. 31, (1764); Dru., Ill. Ex. Ent., I, t. 10, (1770); S. Am. Fabr., Syst. Ent., p. 491, (1775); Spec. Ins., II, p. 71, (1781); Mant. Ins., II, p. 36, (1787); Ent.

Syst., III, 1, p. 226, (1793); Cram., Pap. Ex., II, t. 192, (1779); Herbst, Natursyst. Ins. Schmiett., VIII, p. 258, t. 225, (1796); (*Hamadryas decora* F.) Hüb., Samm. Ex. Schmiett., 1, (1806-1816); (*Ager. F.*) Verz. Bek. Schmiett., p. 42, (1816); (*Nymph. F.*) Godt., Enc. Meth., IX, p. 428, (1823); (*Ager. F.*) Chenn, Pap. Diur., f. 151, (1852); (*Amphichlora F.*) Feld., Neu. Lep., 19, (1861); Seud., Buff. Bull., II, p. 256, (1875); (*Ager. F.*) Kirby, Cat., p. 215, (1871).

— — —, *Seba*, Thes., IV, p. 46, t. 38, f. 10, 11, (1765).

Cram.'s figures A, B, t. 362, Vol. IV, which he has cited as *Feronia*, are not that species, but *Ferentina*.

278. FORNAX, HUB., Samm. Ex. Schmiett., II, (1816-1824); S. W. Texas, Dbldy.-Hew., Gen. Diur. Lep., t. 10, (1847); Mexico, Chenn, Pap. Diur., I, f. 152, (1851-1853); (*Amph. F.*) Feld., Neu. Lep., 19, (1861); (*Ager. F.*) Kirby, Cent. Am.; Cat., p. 215, (1871); (*Amph. F.*) Seud., Buff. Bull., S. Am. to S. Brazil. II, p. 256, (1875).

GENUS 13. EUNICA, HUB.

289. MONIMA, CRAM., (*Pap. M.*), Pap. Ex., IV, t. 387, F, G, Texas, (1782); (*Eun. M.*) Herr-Sch., Reg. Corr.-blatt. Mexico, Zool. Min. Ver., XVIII, p. 162, (1864). Florida, ? *Nymph. Myrta*, Godt., Enc. Meth., IX, p. 418, (1823); Antilles, (*Eun. M.*) Hüb., Verz. Bek. Schmiett., p. 61, (1816). Cent. Am. *Eun. Modesta*, Bates, Ent. Mo. Mag., I, p. 113, (1864); Kirby, Cat., p. 200, (1871).

Eun. (*Pap.*) *Orphise*, Cram., I, t. 42, f. E, F; *Eun. Hyperipte*, Hüb., Samm. Ex.; and *E. (Libythea) Cuvierii*, Lucas, Pap. Ex., t. 61, are all different species from ours, none being identical, as has been sometimes supposed.

GENUS 14. CALLICORE, HUB.

280. CLYMENA, CRAM., (*Pap. C.*), Pap. Ex., I, t. 24, E, F, S. Florida, (1779); (*Call. C.*) Hüb., Verz. Bek. Schmiett., p. Antilles. 41, (1816); Hub.-Gey., f. 583, (1837); Kirby, Cat., p. 207, (1871); (*Diaethria C.*) Seud., Buff. Bull., II, p. 255, (1875).

Pap. Clymeneus, Fabr., Sp. Ins., II, p. 53, (1781); Mant. Ins., II, p. 26, (1787); Ent. Syst., III, p. 43, (1793); (*Nymph. C.*) Godt., Enc. Meth., IX, p. 425, (1823); Lucas, Pap. Ex., p. 135, t. 72, (1835).

In the copies of Lucas that I have seen, the extra discal band on upper side of primaries is painted crimson, which of course was a diversion of the colourist's, as nothing in nature or the text warrants it.

GENUS 15. CYSTINEURA, BDL.

281. DORCAS, FABR., (*Pap. D.*), Syst. Ent., p. 508, (1775); Sp. Texas, Ins., II, p. 97, (1781); Mant. Ins., II, p. 53, (1787). Cent. Am. *Cyst. Amynone*, Mew., En. An. Mus. Petr. Lep., I, p. 123, t. 9, (1857); Kirby, Cat., p. 217, (1871); (*Mestra A.*) Seud., Buff. Bull., II, p. 256, (1875).

GENUS 16. TIMETES, BDL.

282. CHIRON, FABR., (*Pap. C.*), Syst. Ent., p. 452, (1775); Sp. Ins., II, p. 16, (1781); Mant. Ins., II, 8, (1787); Ent. Syst., III, 1, p. 26, (1793); Herbst, Natur-syst. Ins. Schmett., III, p. 222, t. 52, (1788); (*Nymph. C.*) Godt., Enc. Meth., IX, p. 359, (1823); (*Megalura C.*) Kirby, Cat., p. 221, (1871).
Pap. Marius, Cram., Pap. Ex., III, t. 200, (1782); Stoll, Suppl. Cram., t. 30, (1791).
Marpesia Chironias, Hub., Verz. Bek. Schmett., p. 47, (1816).
 ———, Sloane, Hist. Jamaica, t. 239, f. 1, 2, (1725).
 ———, Seba, Thes., IV, p. 42, t. 34, f. 13, 14, p. 43, t. 35, f. 3, 4, (1765).
283. CORESIA, GODT., (*Nymphalis C.*), Enc. Meth., IX, p. 359, (1823); (*Megalura C.*) Blanch., Hist. Nat. Ins., III, p. 447, (1840); (*Timetes C.*) Dbldy.—Hew., Gen. Diur. Lep., II, p. 263, (1850–1852); W. H. Edwds., Proc. Ent. Soc., Phil., I, p. 224, (1862); (*Meg. C.*) Kirby, Cat., p. 220, (1871); (*Tim. C.*) Scud., Buff. Bull., II, p. 256, (1875).
Marpesia Zerynthia, Hub., Samm. Ex. Schmett., II, (1806–1824).
Pap. Sylla, Perty, Del. Anim. Art., p. 151, t. 29, (1830–1834).
284. ELEUCHEA, HUB., (*Marpesia E.*), Samm. Ex. Schmett., II, (1816–1824); Verz. Bek. Schmett., p. 47, (1816); Zutr. Ex. Schmett., f. 197, 198, (1818); H—S., Reg. Corr.—blatt Zool.—Min. Ver., XVIII, p. 161, (1864).
Timetes Eleucha, Dbldy.—Hew., Gen. Diur. Lep., II, p. 263, Atlas, t. 33, (1850–1852); (*Megalura E.*) Kirby, Cat., p. 222, (1871).
Nymphalis Pellenis, Godt., Enc. Meth., IX, p. 359, (1823); (*Athena P.*) Scud., Buff. Bull., II, p. 257, (1875).
 Hubner's figures 197, 198, in the Zutr., evidently represent a different species, or at least a variety. I have not seen in nature anything that resembles it.
285. PELEUS, SULZ., (*Pap. P.*), Abg. Gesch. Ins., t. 13, f. 4, (1776); (*Megalura P.*) Kirby, Cat., p. 222, (1871); (*Athena P.*) Scud., Buff. Bull., II, p. 256, (1875).
Pap. Thetys, Fabr., Gen. Ins., p. 264, (1777); Sp. Ins., II, p. 87, (1781); Mant. Ins., II, p. 47, (1787); Ent. Syst., III, 1, p. 77, (1793); (*Marius T.*) Swains, Zool. Ill. Ins., II, t. 59, (1832).
Pap. Thetis, DeBeauv., Ins. Afr. et Am., p. 189, t. 5, (1805).
Athena Thetis, Hüb., Verz. Bek. Schmett., p. 36, (1816); (*Nymphalis T.*) Godt., Enc. Meth., IX, p.

Texas,
Mexico,
West Indies,
Cent. and S.
America.

Texas,
Mexico,
Cent. Am.

Florida,
W. Indies,
Texas.

S. W. Texas,
Mexico,
Cent. Am.,
S. Am.

- 358, (1823); (*Marius T.*) Dum., Nat. Lib. Ent., V, p. 164, t. 19, (1837).
Pap. Petreus, Cram., Pap. Ex., I, t. 87, (1779); Stoll, Sup. Cram., t. 2, f. 2a, 2b, 2c, Lar. et Pup., (1791); Herbst, Natursyst. Ins. Schmiett., IV, p. 87, t. 67, (1790).
 Larva on the Cashew (*Anacardium Occidentale*).

GENUS 17. VICTORINA, BLANCH.

286. STELENEs, LINN., (*Pap. S.*), Syst. Nat., Ed. X, p. 465, S. W. Texas, (1758), Ed. XII, p. 750, (1767); Mus. Lud. Ulr. Mexico, Reg., p. 218, (1764); Clerck, Icon., t. 35, (1764); Cent. Am., Fabr., Syst. Ent., p. 456, (1775); Sp. Ins., II, pp. S. Am., 23, 92, (1781); Mant. Ins., II, pp. 12, 108, (1787); Ent. Syst., III, 1, p. 84, (1793); Cram., Pap. Ex., I, t. 79, (1779); Herbst, Natursyst. Ins. Schmiett., III, p. 188, t. 47, (1788); DeBeauv., Ins. Afr. et Am., p. 188, t. V, (1805); (*Najas hilaris S.*) Hüb., Samm. Ex. Schmiett., (1806–1824); (*Nymph. S.*) Godt., Enc. Meth., IX, p. 378, (1823); Lucas, Pap. Ex., p. 125, t. 69, (1835); (*Vict. S.*) Dbldy.—How., Gen. Diur. Lep., II, p. 265, Atlas, t. 33, (1850–1852); Gosse, Ann. Nat. Hist. Ser., 2, Vol. II, p. 268, (1848); Chenu, Enc. Hist. Nat. Pap. Diur., p. 126, f. 241, (1851–1853); Seud., Buff. Bull., II, p. 257, (1875).
Metamorph. Stenele, Hüb., Verz. Bek. Schmiett., p. 43, (1816).
Vict. Steneles, Blanch., Hist. Nat. Ins., III, p. 447, (1840); Kirby, Cat., p. 223, (1871).
 ———, *Petiv.*, Gazoph., 20, t. 13, (? 1702).
 ———, *Sloane*, Hist. Jamaica, II, p. 217, t. 239, f. 9, 10, (1725).
Pap. Lavinia, Fabr., Ent. Syst., III, 1, p. 22, (1793).

GENUS 18. LIMENITIS, FABR.

287. MISSIPPUS, LINN., (*Pap. M.*), Mus. Lud. Ulr. Reg., p. Canada; 264, (1764); Syst. Nat., Ed. XII, p. 767, (1767); United Fabr., Syst. Ent., p. 481, (1775); Sp. Ins., II, p. States east of the Rocky 55, (1781); Mant. Ins., II, p. 27, (1787); Ent. Mts. Syst., III, 1, p. 50, (1793); Herbst, Natursyst. Ins. Schmiett., VII, p. 30, t. 158, f. 3, 4, (1794); (*Lim. M.*) Emm., Agr. Nat. Hist. N. York, p. 202, t. 47, (1854); Pack., Guide, p. 261, f. 189, (1869).
Pap. Archippus, Cram., Pap. Ex., I, t. 16, A, B, (1779); (*Lim. A.*) Kirby, Cat., p. 237, (1871); (*Basilarchia A.*) Seud., Syst. Rev. Am. Butt., 8, (1872); Buff. Bull., II, p. 250, (1875).
Anosia Archippe, Hüb., Verz. Bek. Schmiett., p. 16, (1816).

Nymph. Disippe, Godt., Enc. Meth., IX, p. 393, (1823); Harris, Ins. Inj. Veg., Flint's Ed., p. 281, f. 109, (1862).

Nymph. Disippus, Bdl.-Lee., Lep. Am. Sept., p. 204, t. 55, (1833); Morris, Syn., p. 65, (1862); (*Lim. D.*) Dbldy.-Hew., Gen. Diur. Lep., p. 276, (1850-1852); Lint., Proc. Ent. Soc., Phil., III, p. 63, (1864); Samud., Can. Ent., I, p. 94, (1869); Riley, 3d Ent. Rep. State of Missouri, p. 153, f. 68, 69, 70, Im., Lar. et Pup., l. c. p. 171, (1871).

var. a. FLORIDENSIS, NOB.—The form found in Florida and other parts of the extreme south. Whilst our more northern form is of the same colour as *Danaïs Pterippus*, this southern variety exactly mimics in its dark colouration *Danaïs Berezinae*, with which it associates.

Florida,
Southern
Ala., Miss.,
La.

†ab. b. ♂ NIG.—Whole upper surface deep blackish brown, the venation only a shade darker and only distinguishable from rest of ground colour on close inspection; the usual submarginal row and other white spots conspicuously visible by contrast with the blackness of rest of wings. Under surface but a trifle less dark than the upper. Taken by Mr. Jacob Doll in Florida in 1874. Mus. Strecker.

Florida.

ab. c. ♀ PSEUDODORIPPUS, NOB.—Can. Ent., IV, p. 216, (1872). The mesial black stripe of secondaries wanting; the subapical black patch almost gone, only indicated by a darkish shade devoid of the usual three white spots. Under surface same as above, save that the submarginal row of white lunules have no intervening black line between them and the reddish ground colour. Taken in Catskill Mts., N. York, in 1872, by Mr. T. L. Mead, in whose museum it now is.

New York,
Mass.

I have also an example which differs from the above in the total obsolescence of all white lunules in margins of both surfaces; in this the mesial line of secondaries is very faintly visible, in all other points it agrees with the other example just described. It is a ♂ and was taken near Holyoke, Mass., in 1871, by Mr. Jos. E. Chase.

Larva on various species of willow (*Salix*), plum (*Prunus*), poplar (*Populus*) and oak (*Quercus*).

288. EPIHESTION, STOLL, (*Pap. E.*), Suppl. Cram., p. 121, t. 25, f. 1, 1a, (1790); Godt., Enc. Meth., IX, p. 42, (1819); (*Najas turbida E.*) Hüb., Samm. Ex. Schmett., I, (1806-1824); (*Nymph. E.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 283, (1862); (*Lim. E.*) Paek., Guide, p. 262, (1869).

United
States from
the Atlantic
to the Rocky
Mts.; Ari-
zona, Mexico

Pap. Astyanax, Fabr., Syst. Ent., p. 447, (1775); Sp. Ins., II, p. 7, (1781); Mant. Ins., II, p. 4, (1787); (*Lim. A.*) Kirby, Cat., p. 237, (1871); (*Basilarchia A.*) Scud., Syst. Rev. Am. Butt., 8, (1872); Buff. Bull., II, p. 249, (1875).

Pap. Ursula, Fabr., Ent. Syst., III, 1, p. 82, (1793); Ab.-S., Ins. Ga., I, t. 10, (1797); (*Nymph. U.*) Godt., Enc. Meth., IX, p. 380, (1823); Bdl.-Lee., Lep. Am. Sept., p. 199, t. 53, (1833); Morris, Syn., p. 64, (1862); (*Lim. U.*) Riley, Can. Ent., III, p. 52, Lar., (1871); W. H. Edwds., l. c., V, p. 10, (1873).

Callianira Ephestiaena, Hüb., Verz. Bek. Schmett., p. 38, (1816).

var. a. VIRIDIS.—The blue of upper surface replaced by green.

ab. b. RUBIDUS.—Blue of upper surface replaced by fulvous. Under surface suffused with fulvous. Described by T. L. Mead in Can. Ent., IV, p. 217, (1872).

Larva on willow, wild gooseberry, wild cherry, apple, plum, hawthorn, oak, *Vaccinium Stramineum*, *Carpinus Americana*.

Fabricius, in his Syst. Ent., (1775), had used for this insect the name of *Astyanax*, but in the Ent. Syst., (1793), he changed it to *Ursula* in consequence of the previous name already having been used to designate one of the ♀ varieties of *Pap. Pammon* (figured in Don., Ins. Ind., t. 19), both insects being in the genus *Papilio* as then defined; his action in making this change, and thus, as he supposed, avoiding synonymy, was of course right, and his later name would have stood had not Stoll, (in 1790), in his Supplement to Cram., three years prior to this change, figured and cited the species as *Ephestion*, and as, at the time of his so doing, *Astyanax* was a synonym, his name will have to be retained, and the later one of *Ursula*, even though applied by Fabricius, should be dropped.

289. ARTHIEMIS, DRU., (*Pap. A.*), Ill. Ex. Ent., II, t. 10, (1773); (*Lim. A.*) Say, Am. Ent., II, t. 23, (1825); (*Nymph. A.*) Bdl.-Lee., Lep. Am. Sept., p. 202, t. 54, (1833); (*Lim. A.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 276, (1850-1852); Emm., Agr. Nat. Hist. N. York, p. 211, t. 43, (1854); (*Nymph. A.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 243, t. 1, (1862); Morris, Syn., p. 65, (1862); (*Lim. A.*) Lint, Proc. Ent. Soc., Phil., III, p. 62, (1864); Reak., l. c., VI, p. 143, (1866); Pack., Guide, p. 262, (1869); Saund., Can. Ent., I, p. 95, (1869); (*Basilarchia A.*) Scud., Syst. Rev. Am. Butt., 8, (1872); Buff. Bull., II, p. 249, (1875); (*Lim. A.*) W. H. Edwds., Can. Ent., V, p. 232, (1873); Mead, l. c., VII, p. 162, (1875).

Nymph. Artemis, Dbldy., Cat. Lep. B. M., I, 96, (1844); (*Lim. A.*) Kirby, Cat., p. 237, (1871).

Pap. Lamina, Fabr., Ent. Syst., III, 1, p. 118, (1793); (*Nymph. L.*) Godt., Enc. Meth., IX, p. 380, (1823).

- var. a. PROSERPINA, W. H. EDWDS., Proc. Ent. Soc., Phil., V, p. 148, (1865); Trans. Am. Ent. Soc., I, p. 286, t. V, (1867); Butt. N. Am., I, t. 1, *Lim.*, (1868); Kirby, Cat., p. 237, (1871); Streck., Lep., Rhop.-Het., p. 70, (1873); W. H. Edwds., Can. Ent., V, p. 232, (1873); (*Basilarchia P.*) Grote, Can. Ent., V, p. 143, (1873); Scud., Buff. Bull., II, p. 249, (1875).

On upper surface the white band of primaries either partially obsolete or entirely so; on secondaries entirely wanting. Below sometimes obsolete on all wings and sometimes partially present.

Larva on willow and hawthorn.

British Columbia as high up as M'Kenzie's River; Canada; the northern United States and Territories from Atlantic to Pacific.

New Eng. States, N. York, Penna.

290. WEIDEMEYERII, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 162, (1861); Butt. N. Am., I, t. 2, Lim., (1869); Morris, Syn., p. 327, (1862); Reak., Proc. Ent. Soc., Phil., VI, p. 143, (1866); Kirby, Cat., p. 236, (1871); Mead, Wheeler's Rep., V, p. 770, t. 38, (1875); (*Basilarchia W.*) Seud., Buff. Bull., II, p. 249, (1875). Colorado, Montana, Utah.
291. LORQUINI, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 301, (1852); Morris, Syn., p. 66, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 127, (1864); W. H. Edwds., Butt. N. Am., I, t. 3, Lim., (1869); (*Adelpha L.*) Kirby, Cat., p. 235, (1871); (*Lim. L.*) Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 171, Lar., (1873); Mead, Wheeler's Rep., V, p. 770, t. 38, (1875); Seud., Buff. Bull., II, p. 250, (1875). California, Oregon.
Larva on willow (*Salix*).
292. BREDOWII, HUB., (*Adelpha B.*), Zutr. Ex. Schmiett., f. 825, 826, (1837); (*Lim. B.*) W. H. Edwds., Butt. N. Am., I, t. 4, Lim., (1870); (*Adelpha B.*) Kirby, Cat., p. 235, (1871). California, Arizona, Oregon, Mexico.
Lim. Eulalia, Dblty.—Hew., Gen. Diur. Lep., t. 36, (1850–1852); Bdl., Ann. Soc. Ent. Fr., 2me Ser. X, p. 301, (1852); W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 225, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 127, (1864).
Heterochroa Californica, Butl., Proc. Zool. Soc. Lond., p. 485, (1865); (*Adelpha C.*) Kirby, Cat., p. 235, (1871); (*Lim. C.*) Hy. Edwds., Proc. Cal. Acad. Nat. Sc., V, p. 171, (1873); Mead, Wheeler's Rep., V, p. 770, t. 38, (1875); Seud., Buff. Bull., II, p. 250, (1875).
This species connects *Limenitis* with the subgenus *Heterochroa*, Bdl., (*Adelpha*, Hub.)

GENUS 19. APATURA, FABR.

293. CELTIS, BDL.—LEC., Lep. Am. Sept., p. 210, t. 57, (1833); Morris, Syn., p. 68, (1862); Kirby, Cat., p. 262, (1871); W. H. Edwds., Butt. N. Am., II, t. 1, Ap., f. 1, 2, 3, (1875). Westward from Virginia to Texas, southward to the Gulf of Mexico.
- Pap. Lycaon*, Fabr., Ent. Syst., III, 1, p. 228, (1793); Herbst, Natursyst. Ins. Schmiett., VIII, p. 295, (1796); (*Satyrus ? L.*) Dblty.—Hew., Gen. Diur. Lep., II, p. 392, (1850–1852); (*Dorocopa L.*) Seud., Syst. Rev. Am. Butt., 9, (1872); (*Apatura L.*) Riley, Trans. St. Louis Acad. Sc., III, p. 193, (1873); 6th Ent. Rep. State of Missouri, p. 137, f. 39, 40, (1874); (*Chlorippe L.*) Seud., Buff. Bull., II, p. 249, (1875).
- ab. a. ♂♀ ALB., figured in W. H. Edwds.' Butt. N. Am., II, t. 1, Ap., f. 4, 5, (1875).
A form occurring sometimes, in first generation, with the ground colour of both surfaces white.

- var. b. ALICIA, W. H. EDWDS., Butt. N. Am., I, t. 1, Ap., (1868). Gulf States from Florida to Louisiana.
Much larger. Ground colour of upper surface inclined to reddish tawny.
- ? var. c. LEHIA, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 103, (1874); Butt. N. Am., II, t. 1, Ap., f. 6, 7, (1875). Arizona; Llano Estracado.
More reddish in tint of upper surface than the preceding, less fuscous on apical parts of primaries, and with three ocelli on upper and under surface of primaries instead of but two as in all the other forms.
- Larva on *Celtis Occidentalis* (hackberry).
294. CLYTON, BDL.—LEC., Lep. Am. Sept., p. 208, t. 56, (1833); Morris, Syn., p. 68, (1862). From New York westward to Kansas and southward to the Gulf of Mexico.
Ap. Clyton, var. Ocellata, W. H. Edwds., Butt. N. Am., II, t. 2, Ap., f. 1, 2, 3, 4, (1876).
Pap. Herse, Fabr., Ent. Syst., III, 1, p. 229, (1793); (*Satyrus* ? *H.*) Dbldy.—Hew., Gen. Diur. Lep., II, 392, (1850–1852); (*Doxocopa H.*) Seud., Syst. Rev. Am. Butt., 9, (1872); (*Apatura H.*) Riley, Trans. St. Louis Acad. Sc., III, p. 198, (1873); 6th Ent. Rep. State of Missouri, p. 140, f. 41, 42, (1874); (*Chlorippe H.*) Seud., Buff. Bull., II, p. 248, (1875).
Apatura Idyja, Kirby, Cat., p. 262, (1871).
- ab. a. PROSERPINA, SEUD., Proc. Bost. Soc. Nat. Hist., XI, p. 401, (1868); Trans. Chicago Acad. Nat. Sc., I, p. 332, (1869); W. H. Edwds., Butt. N. Am., II, t. 2, Ap., f. 5, 6, (1876). Entire upper surface of secondaries obscured with blackish, ocelli obsolete.
- ‡ab. b. ♂ NIG.—Upper surface of all wings obscured with blackish. Berks Co., Penna.
Mus. Streck.
- var. c. FLORA, W. H. EDWDS., Butt. N. Am., II, (1876). Florida.
Of large size. Upper surface bright orange-ferruginous. Under surface strongly ferruginous.
Larva on *Celtis Occidentalis*.
- There is strong doubt as to whether Fabricius' descriptions of *Lycaon* and *Herse* were meant to apply to the species since designated as *Celtis* and *Clyton* by Bdl. as there is disagreement in many particulars; besides it would appear that the said descriptions of Fabricius were not taken from real insects, but from the pictures of insects, in which case all claims to priority for his names would fall; and, at any rate, as the species have been known by Bdl.'s names for over forty years, there can be nothing gained by suppressing them in favor of those of Fabricius.
- Fabricius' *Herse* I really believe to be identical with *Idyja*, Hub., a Cuban species.

GENUS 20. AGANISTHOS, BDL.

295. ORION, FABR., (*Pap. O.*), Syst. Ent., p. 485, n. 185, (1775); Sp. Ins., II, p. 62, (1781); Mant. Ins., II, p. 29, (1787); Ent. Syst., III, 1, p. 55, (1793); Cent. and S. Am.
(*Nym. O.*) Godt., Enc. Meth., IX, p. 368, (1823);

- (*Agan.* *O.*) Bll.-Lee., Lep. Am. Sept., p. 195, t. 52, (1833); Bll., Sp. Gen., t. 8, (1836); (*Nym.* *O.*) Lucas, Pap. Ex., p. 124, t. 66, (1835); (*Agan.* *O.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 302, t. 46, (1850-1852); Chenu, Pap. Diur., p. 148, f. 264, (1851-1853); (*Historis* *O.*) Seud., Buff. Bull., II, p. 248, (1875).
- Pap. Odius*, Fabr., Syst. Ent., p. 457, n. 60, (1775); Sp. Ins., II, p. 23, n. 95, (1781); Mant. Ins., II, p. 12, n. 111, (1787); Sulz., Gesch. Ins., t. 13, (1776); Herbst, Natursyst. Ins. Schmett., III, p. 100, t. 35, (1788); (*Hamad.* *undata* *O.*) Hüb., Samm. Ex. Schmett., I, (1806-1816); (*Agan.* *O.*) Kirby, Cat., p. 263, (1871).
- Pap. Danaë*, Cram., I, t. 84, (1779).
- Historis* *Odia*, Hüb., Verz. Bek. Schmett., p. 35, (1816).

GENUS 21. MEGISTANIS, WESTW.

296. *ACHERONTA*, FABR., (*Pap. A.*), Syst. Ent., p. 501, (1775); ? Texas, Sp. Ins., II, p. 87, (1781); Mant. Ins., II, p. 47, ? S. Florida, (1787); Ent. Syst., III, 1, p. 76, (1793); (*Coca* *A.*) Antilles, Hüb., Verz. Bek. Schmett., p. 48, (1816); (*Nym.* Mexico, *A.*) Godt., Enc. Meth., IX, p. 358, (1823); (*Agan.* Cent. and *A.*) Kirby, Cat., p. 264, (1871); Seud., Buff. Bull., S. Am., to II, p. 247, (1875). Brazil.
- Pap. Cadmus*, Cram., Pap. Ex., I, t. 22, (1779); Herbst, Natursyst. Ins. Schmett., IV, p. 24, t. 57, f. 1, 2, (1790); (*Megis.* *C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 311, t. 36, (1850-1852).
- Pap. Pherecydes*, Cram., Pap. Ex., IV, t. 330, (1782); Herbst, Natursyst. Ins. Schmett., IV, p. 26, t. 57, f. 3, 4, (1790); (*Coca* *P.*) Hüb., Verz. Bek. Schmett., (1816).

GENUS 22. PAPHIA, WESTW.

297. *TROGLODYTA*, FABR., (*Papilio T.*), Syst. Ent., p. 502, n. 250, (1775); Sp. Ins., II, p. 87, (1781); Mant. S. Illinois, Kentucky, Ins., II, p. 47, (1787); Ent. Syst., III, 1, p. 77, Missouri, (1793); (*Paphia T.*) Dbldy.-Hew., Gen. Diur. Kansas, Lep., II, p. 318, (1850-1852); (*Anaea T.*) Kirby, Texas, Cat., p. 276, (1871); Seud., Buff. Bull., II, p. 248, (1875).
- Anaea Troglodita*, Hüb., Verz. Bek. Schmett., p. 48, (1816).
- Papilio Astinax*, Cram., Pap. Ex., IV, t. 337, A, B, ♀, (1782); Herbst, Natursyst. Ins. Schmett., IV, p. 28, t. 57, (1790).
- Papilio Astina*, Fabr., Ent. Syst., III, 1, p. 81, (1793); (*Hamadryas undata* *A.*) Hüb., Samm. Ex. Schmett., (1806-1816).

Paph. Glycerium, Riley, (*nec Dbldy.*), Am. Ent., II, p. 121, f. 81-83, (1870); W. H. Edwds., Butt. N. Am., t. 1, *Paphia*, (1870); Morris, Syn., p. 67, (1862).
Anaea Andria, Scud., Buff. Bull., II, p. 248, (1875).
 Larva on wild sage (*Croton Capitatum*).

Pap. Glycerium, Dbldy., (in Gen., II, p. 319, n. 10, t. 50, f. 1, 1850-1852), is a Mexican species, differing decidedly, not only in markings but even in shape of wings, especially of the primaries.

Pap. Astinax of Cram.'s t. 337 recognizably represents the ♀ of our species, though the tails are a little exaggerated in length and the red colour of upper side is too deep for the ♀, being nearer that of the male. Cram. says the original of his figures was from the island of St. Thomas, in the W. Indies.

Herbst's fig. (vol. IV, t. 57) is a copy of Cramer's.

Hamadryas undata Astina, in Ex. Schmett., I, also represents, I think, the ♀ of our species, though it differs in some slight respects from Cram.'s figure.

FAMILY IX. SATYRIDÆ.

GENUS 1. PRONOPHILA, WESTW.

298. TRITONIA, W. H. EDWDS., (*Geirocheilus T.*), Trans. Am. Ent. Soc., V, p. 18, (1874); (*Gyrocheilus T.*) Scud., Buff. Bull., II, p. 241, (1875). Arizona.

GENUS 2. DEBIS, WESTW.

299. PORTLANDIA, FABR., (*Pap. P.*), Sp. Ins., II, p. 82, (1781); Ent. Syst., III, 1, p. 103, (1793); Herbst, Natur-syst. Ins. Schmett., VIII, p. 285, (1796); (*Satyrus P.*) Bdl.-Lec., Lep. Am. Sept., p. 226, t. 58, (1833); (*Debis P.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 360, (1850-1852); (*Lethe P.*) Butl., Cat. Satyr. B. M., p. 114, (1868); (*Euptychia ? P.*) Kirby, Cat., p. 55, (1871); (*Enodia P.*) Scud., Syst. Rev. Am. Butt., 5, (1872); Buff. Bull., II, p. 241, (1875). Canada, U. States east of the Rocky Mts.
Pap. Portlandia, Fabr., Mant. Ins., II, p. 45, (1787).
Oreas Marmorea Andromacha, Hüb., Samml. Ex. Schmett., I, (1806-1816); (*Hipparchia A.*) Say, Am. Ent., II, t. 36, (1825); (*Pap. A.*) Brown, Const. Mis. Butt., I, p. 195, t. 44, (1832); (*Hipp. A.*) Gosse, Can. Nat., p. 246, (1840); (*Debis A.*) Morris, Syn., p. 78, (1862).
 Larva on grass.

†ab. a. ♂—Spots on upper surface of primaries very small and almost obsolete, the transverse lines entirely wanting. In the cells (excepting the discoidal) accompanying the veins are broad furry fuscous lines connected inwardly, open outwardly, leaving sagittate spaces of the brown ground colour in the middle of each cell. Mus. Strecker. Texas.

GENUS 3. NEONYMPHA, HUB.

300. EURYTUS, FABR., (*Pap. E.*), Syst. Ent., p. 487, (1775); Sp. Ins., II, p. 65, (1781); Mant. Ins., II, p. 32, (1787); (*Euptychia E.*) Butler, Proc. Zool. Soc., Lond., p. 465, (1866); Kirby, Cat., p. 48, (1871); Canada, U.S. from the Atlantic to Kan., Neb. and Texas.

(*Megisto E.*) Scud., Syst. Rev. Am. Butt., 7, (1872);
(*Cissia E.*) Buff. Bull., II, p. 245, (1875).

Pap. Eurytris, Fabr., Ent. Syst., III, 1, p. 157, (1793); Herbst, Natursyst. Ins. Schmiett., VIII, p. 96, t. 196, (1796); (*Neon. E.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); Chenu, Pap. Diur., p. 281, (1851-1853); (*Hipparchia E.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 306, f. 129, (1862); (*Neon. E.*) Pack., Guide, p. 264, (1869).

Satyrus Eurythris, Godt., Enc. Meth., IX, p. 494, (1823); Bdl.-Lec., Lep. Am. Sept., t. 61, (1833); (*Neon. E.*) Morris, Syn., p. 73, (1862); Saund., Can. Ent., II, p. 139, (1870).

Pap. Cymela, Cram., II, t. 132, (1779).

Megisto Cymelia, Hüb., Verz. Bek. Schmiett., p. 54, (1816).

†ab. a.—With all the ocelli of enormous size.

Larva on grass.

Florida.

301. RUBRICATA, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 212, (1871); (*Cissia R.*) Scud., Buff. Bull., II, p. 245, (1875). Texas.

302. SOSYBIUS, FABR., (*Pap. S.*), Ent. Syst., III, 1, p. 219, (1793); Herbst, Natursyst. Ins. Schmiett., VIII, p. 148, (1796); (*Satyr. S.*) Godt., Enc. Meth., IX, p. 495, (1823); Bdl.-Lec., Lep. Am. Sept., t. 63, (1833); (*Neon. S.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); Morris, Syn., p. 74, (1862); (*Eupt. S.*) Butl., Proc. Zool. Soc., Lond., p. 474, (1866); Kirby, Cat., p. 49, (1871); (*Cissia S.*) Scud., Buff. Bull., II, p. 245, (1875). Southern half of the U. States from the Atlantic west to Texas inclusive; Mexico; Cent. Am.; S. Am.

Pap. Camerta, Cram., Pap. Ex., IV, t. 293, F, (1782); (*Neon. C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); (*Eupt. C.*) Kirby, Cat., p. 48, (1871).

Pap. Camertus, Herbst, Natursyst. Ins. Schmiett., VIII, p. 91, t. 195, (1796).

303. PHOCION, FABR., (*Pap. P.*), Sp. Ins., II, p. 138, (1781); Mant. Ins., II, p. 92, (1787); Ent. Syst., III, 1, p. 218, (1793); Herbst, Natursyst. Ins. Schmiett., p. 147, (1796); (*Neon. P.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); (*Eupt. P.*) Kirby, Cat., p. 55, (1871); (*Megisto P.*) Scud., Syst. Rev. Am. Butt., 7, (1872); (*Neon. P.*) Buff. Bull., II, p. 244, (1875). Southern U. States from the Atlantic to Texas.

Pap. Areolatus, Abb.-S., Ins. Ga., I, p. 25, t. 13, (1797); (*Satyr. A.*) Godt., Enc. Meth., IX, p. 494, (1823); Bdl.-Lec., Lep. Am. Sept., t. 63, (1833); (*Neon. A.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); Morris, Syn., p. 74, (1862).

Euptyc. Areolata, Butl., Proc. Zool. Soc., Lond., p. 498, (1866).

Oreas fimbriata Helicta, Hüb., Samml. Ex. Schmiett., I, (1806-1816); (*Neon. H.*) Verz. Bek. Schmiett., p. 65, (1816).

Larva on *Andropogon Nutans*, *Panicum Sanguinale*.

Fabr.'s diagnosis in the Sp. Ins. is not so plain, but in the Ent. Syst. it is more to the point: "Alis integerrimis supra fuscis immaculatis, posticis subtus strigis flavis ocellisque tribus oblongis. Habitat, — —. Mus. Britann. Parvus. Alae omnes supra fuscae, immaculatae. Subtus anticae fuscae, immaculatae, posticae strigis quatuor flavis, quarum 2-3 utrinque coeunt & inter has ocelli tres valde oblongi, atrii iride flava punctisque plurimis pupillaribus, argenteis."

Also Herbst's version from Vol. VIII, p. 147: "Die Fluegel sind oberhalb braun, ungefleckt; unten sind die Oberfluegel gleichfalls ungefleckt braun, die Unterfluegel aber haben vier gelbe linien, von welchen die zweyte und dritte an beyden Seiten zusammenstossen, und zwischen diesen sind drey sehr langlich runde schwarze Augen mit gelben Ringen und mehreren silbernen Pupillen."

These descriptions point undeniably to this species, and loth as we are to ignore the more familiar name of *Areolatus*, we must nevertheless allow that, according to the law of priority, it is untenable.

304. GEMMA, HUB., (*Neon. G.*), Zutr. Ex. Schmiett., I, f. 7, 8, (1818); Verz. Bek. Schmiett., p. 65, (1816); (*Satyr. G.*) Bdl.-Lee., Lep. Am. Sept., t. 62, (1833); (*Neon. G.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 375, (1850-1852); Morris, Syn., p. 73, (1862); (*Eupt. G.*) Butl., Proc. Zool. Soc., Lond., p. 500, (1866).

Southern States from the Atlantic to Texas.

Satyrus Cornelius, Godt., Enc. Meth., IX, p. 493, (1823); (*Eurygona C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 438, (1850-1852); (*Eupt. C.*) Kirby, Cat., p. 55, (1871); (*Neon. C.*) Seud., Buff. Bull., II, p. 244, (1875).

Larva on grass.

Whether this be identical with the *Cornelius* of Fabr. I am unable to determine from the doubtful and unsatisfactory diagnosis of the latter; though it is possible that such may be the case. But as Hubner has given most excellent figures, and moreover it is supposed that Fabr. was unacquainted with the insect in nature and that he drew his description from a picture, it is probably best to retain Hubner's name of *Gemma*, by which the species has so long been generally known.

I here append Fabricius' description of *Cornelius*, also the same from Herbst published three years later.

Fabr., Ent. Syst., III, 1, p. 220, n. 689, (1793): "Alis integerrimis obscure cinereis; posticis ocellis quatuor approximatis. Habitat — —. Dom. Drury. Medius alae supra obscure cinereae, anticae immaculatae, posticae ocellis quatuor approximatis, marginalibus, fuscis, subtus paullo pallidiores, fusco undatae, posticis ocellis quatuor marginalibus, approximatis, atris pupilla argentea."

Herbst, Nat. Ins. Schmiett., VIII, p. 139, (1796): "*Pap. Cornelius*. Er ist von mittlerer Groesse. Oberhalb sind die Fluegel dunkel aschgran, die obern ungefleckt, die untern haben vier dicht neben einander stehende, Augen, sie stehen am Aussenrande und sind braun, unten sind die Fluegel etwas blasser braun, wellenformig; die vier Augen auf den Unterfluegeln sind auch hier, aber schwarz mit einer silbernen Pupille. Das Vaterland ist unbekannt."

- †*305. HENSHAWI, W. H. EDWARDS, Trans. Am. Ent. Soc., V, Arizona.
p. 205, (1876).

GENUS 4. EREBIA, DALM.

(Maniola, Schrk.)

306. TYNDARUS, ESP., (*Pap. T.*), Schmett., I, 2, p. 97, t. 67, Colorado ;
(1781); Ochs., Schmett. Eur., I, 1, p. 299, (1807); Swiss Alps,
Hüb., Eur. Schmett., I, f. A, 971-974, (1829- Hungary,
1841); (*Hipp. T.*) Freyer, Neu. Beit., I, t. 80, f. 2, Italy,
(1833); (*Maniola T.*) Kirby, Cat., p. 63, (1871); France.
(*Ereb. T.*) Stgr., Cat., p. 25, (1871).
Pap. Herse, Brk., Natur. Schmett., I, p. 94, (1788).
Pap. Cussioides, Esp., Schmett. Eur., I, 2, t. 103, f.
2, 3, (1790).
Pap. Dromus, Fabr., Ent. Syst., III, 1, p. 224, (1793);
(*Satyr. D.*) Godt., Enc. Meth., IX, p. 528, (1823);
Lucas, Pap. Eur., p. 85, t. 39, (1834); (*Ereb. D.*)
H-S., Schmett. Eur., I, p. 59, t. 37, f. 169, 170,
(1843); Dbldy.-Hew., Gen. Diur. Lep., II, p.
379, (1850-1852).
Pap. Tyndarellus, Herbst, Natursyst. Ins. Schmett.,
VIII, p. 135, t. 202, (1796).
Pap. Cleo, Hüb., Eur. Schmett., I, f. 209-212,
(?1796); Godt., Hist. Nat. Lep. Fr., II, 17, 5, 6,
(1821-1824).
Hipparchia Neleus, Freyer, Neu. Beit., I, t. 80, f. 3,
4, (1833).
Erebia Callias, W. H. Edwards, Trans. Am. Ent. Soc.,
III, p. 274, (1871); Scud., Buff. Bull., II, p. 243,
(1875).
Ereb. Tyndarus, var. Callias, Mead, Wheeler's Rep.,
V, p. 775, (1875).
- †*307. VESAGUS, DBLDY.-HEW., Gen. Diur. Lep., II, p. 380, "Rocky
t. 64, f. 3, (1850-1852); Reak., Proc. Ent. Soc., Mts."
Phil., VI, p. 143, (1866); (*Maniola V.*) Kirby,
Cat., p. 64, (1871); (*Ereb. V.*) Scud., Buff. Bull.,
II, p. 243, (1875).
The locality is given in Dbldy. as "Rocky Mountains." The
figure represents only the upper surface and is entirely un-
like any known N. Am. species, nor do I believe it was ever
captured in this country, unless possibly in Arizona; the fig-
ure resembles more in appearance some of the species of the
S. Am. genus *Lymanopoda* than any of the N. Am. Satyridae.
308. EPIPSODEA, BUTL., Cat. Sat. B. M., p. 80, t. 2, f. 9, Colorado.
(1868); (*Maniola E.*) Kirby, Cat., p. 65, (1871);
(*Ereb. E.*) Scud., Buff. Bull., II, p. 243, (1875);
Mead, Wheeler's Rep., V, p. 775, (1875).
Ereb. Rhodia, W. H. Edwards, Trans. Am. Ent. Soc.,
III, p. 273, (1871).
- †*309. HAYDENII, W. H. EDWARDS, Hayden's Rep. Exp. Mont. Montana.
tana, p. 467, (1872); Scud., Buff. Bull., II, p. 243,
(1875).

- †*310. ROSSII, CURT., (*Hipp. R.*), App. Nat. Hist. Ross' 2d Voy., p. 67, t. A, f. 7, (1835); (*Ereb. R.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 380, (1850-1852); (*Maniola R.*) Kirby, Cat., p. 67, (1871); (*Ereb. R.*) Scud., Buff. Bull., II, p. 243, (1875).
This is probably a form of *Embla*, Thnh.
- †*311. DISA, VAR. MANCINUS, DBLDY.-HEW., (*Erebia Mancinus*), Gen. Diur. Lep., II, p. 380, Atlas, t. 54, (1850-1852); Reak., Proc. Ent. Soc., Phil., VI, p. 143, (1866); (*Disa*, var. *M.*) Butl., Cat. Sat. B. M., p. 89, (1868); (*Maniola M.*) Kirby, Cat., p. 67, (1871); (*Ereb. M.*) Scud., Buff. Bull., II, p. 243, (1875).
312. DISCOIDALIS, KIRBY, (*Hipparchia D.*), Faun. Bor. Am., IV, p. 298, t. 3, f. 2, 3, (1837); (*Ereb. D.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 380, (1850-1852); Morris, Syn., p. 75, (1862); (*Maniola D.*) Kirby, Cat., p. 67, (1871); (*Ereb. D.*) Stgr., Cat., p. 26, (1871); Scud., Buff. Bull., II, p. 243, (1875).
- †*313. FASCIATA, BUTL., Cat. Sat. B. M., p. 92, t. 2, f. 8, (1868); (*Maniola F.*) Kirby, Cat., p. 63, (1871); (*Ereb. F.*) Scud., Buff. Bull., II, p. 243, (1875).
This may be identical with *Discoidalis*, but I have had no opportunity of examining Butler's figure, hence cannot speak with any certainty.

GENUS 5. CHIONOBAS, BDL.

(*Encis*, Hüb.)

314. JUTTA, HUB., (*Pap. J.*), Eur. Schmett., f. 614, 615, (1800-1823); (*Chion. J.*) Bdl., Icones, t. 38, f. 1-4, (1832); (*Satyr. J.*) Dup., Lep. Sup., I, t. 40, f. 3-5, (1832); Zett., Ins. Lap., p. 902, (1840); (*Chion. J.*) H-S., Schmett. Eur., I, f. 116-118, (1843); Dbldy.-Hew., Gen. Diur. Lep., II, p. 382, (1850-1852); Wallengr., Skand. Dagf., p. 46, (1853); Moseh., Wien. Ent. Mon., VII, p. 201, (1863); Scud., Proc. Ent. Soc., Phil., V, p. 3, (1865); Pack., Guide, p. 263, (1869); Moseh., Stett. Ent. Zeit., p. 122, (1870); (*Encis J.*) Kirby, Cat., p. 68, (1871); Stgr., Cat., p. 27, (1871); Scud., Buff. Bull., II, p. 241, (1875).
Pap. Norma, var., *Ochs.*, Schmett. Eur., I, 1, p. 202, (1807), IV, p. 134, (1816), X, p. 31, (1834).
Chion. Balder, Bdl., Icon., I, 189, t. 39, f. 1-3, (1832); Icon. du Reg. An. par Guer. Ins., t. 80, f. 1, 1a, (1829-1844); (*Satyr. B.*) Dup., Lep., I, t. 49, f. 4, 5, (1832); (*Chion. B.*) Bdl.-Lec., Lep. Am. Sept., p. 216, (1833); (*Satyr. B.*) Zett., Ins. Lap., p. 902, n. 6, (1840); (*Chion. B.*) H-S., Schmett. Eur., I, f. 384-386, (1843); Morris, Syn., p. 71, (1862).
Eumenis Balderi, Hüb., Zutr., f. 981, 982, (1837).
315. SEMIDEA, SAY, (*Hipparchia S.*) Am. Ent., III, t. 50, (1828); (*Coenonympha S.*) Morris, Syn., p. 80, (1828); (*Chion. S.*) p. 351, (1862); (*Hipp. S.*) Harris, Ins. Mts. of N.H.; Mts. of Col.

Inj. Veg., Flint's Ed., p. 304, f. 126, (1862); (*Chion. S.*) Scud., Best. Jnl. Nat. Hist., VII, p. 621, t. 14, f. 2-8, (1863); Proc. Ent. Soc., Phil., V, p. 20, (1865); Pack., Guide, p. 263, f. 190, (1869); Mosch., Stett. Ent. Zeit., p. 123, (1870); (*Oeneis S.*) Stgr., Cat., p. 27, (1871); Kirby, Cat., p. 70, (1871); Scud., Buff. Bull., II, p. 240, (1875); (*Chion. S.*) Mead, Wheeler's Rep., V, p. 776, (1875).
Chion. Oeno, Bdl., Icones, Hist. Lep., I, p. 195, t. 39, f. 4-6, (1832); (*Satyr. O.*) Dup., Hist. Lep., I, t. 49, f. 1-3, (1832); (*Chion. O.*) Bdl.-Lec., Lep. Am. Sept., p. 220, (1833); H-S., Schmiett. Eur., I, p. 71, f. 59, 60. f. 123, 124, ab. with ocelli, (1843-1856); Mosch., Wien. Ent. Mon., VII, p. 211, (1863).
Chion. Also, Bdl., Icones, Hist., I, p. 197, t. 40, f. 1, 2, (1832); H-S., t. 78, f. 381, (1843-1856).
 Larva on *Carex Rigida*.

316. CRAMBIS, FREY., (*Pap. C.*), Neu. Beit., V, t. 440, f. 3, 4, (1845); (*Chion. C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 383, (1850-1852); Mosch., Stett. Ent. Zeit., p. 123, (1870); (*Oeneis C.*) Stgr., Cat., p. 27, (1871).

Labrador.

Chion. Also, Morris, Syn., p. 71, (1862); Mosch., Wien. Ent. Mon., VII, p. 205, (1863).

Hipp. Subhyalina, Curt., App. Ross' 2d Voy., p. 68, (1835); (*Oeneis S.*) Kirby, Cat., p. 70, (1871).

Chion. Taygete, H-S., Schmiett. Eur., I, p. 70, t. 24, f. 112-115, (1843); Leder, Verz. Zool. Bot. Ver., 24, (1862).

Chion. Oeno, Scud., Proc. Ent. Soc., Phil., V, p. 13, (1865); Buff. Bull., II, p. 240, (1875).

(*Oeneis Oeno*, var. *b. Crambis*, Kirby, Cat., p. 70, (1871).

Oeneis Assimilis, Butl., Cat. Sat. B. M., 163, t. 2, f. 10, (1868); Kirby, Cat., p. 70, (1871).

317. TAYGETE, HUB., (*Oeneis T.*), Samm. Ex. Schmiett., III, Nymph. IX, Oread. D. Nubilae, 4, f. 1-4, (1816-1824); (*Chion. T.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 383, (1850-1852); (*Chinobas T.* ♀) W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 57, (1862); Mosch., Wien. Ent. Mon., VII, p. 213, (1863); (*Oeneis T.*) Kirby, Cat., p. 70, (1871).

Labrador.

Chion. Bootes, Bdl., Icon. Hist., p. 191, t. 37, f. 4-6, (1832); (*Satyr. B.*) Dup., Lep., I, t. 32, f. 3-5, (1832); (*Hipp. B.*) Ochs.-Treits., Schmiett., X, 1, p. 32, (1834); (*Chion. B.*) Bdl., Sp. Gen., I, t. 13, f. 3, (1836); (*Eumenis ? B.*) Hüb., Eur. Schmiett., I, f. 1025-1028, (? 1841); (*Chion. B.*) H-S., Schmiett. Eur., I, p. 69, t. 80, f. 391, 392, (1843-1850); Leder, Vers. Zool. Bot. Ver., (1852); Wallengr., Skand. Dagf., p. 46, (1853); Morris, Syn., p. 72, (1862); Mosch., Stett. Ent. Zeit., p. 124, (1870); (*Oeneis B.*) Kirby, Cat., p. 70, (1871).

Chion. Bore, Scud., Proc. Ent. Soc., Phil., V, p. 19, (1865).

(Eneis Bore, var. *Taygete*, Stgr., Cat., p. 27, (1871).

Chion. Calais, Scud., Proc. Ent. Soc., Phil., V, p. 7, (1865).

Moschler gives this and *Bore* as varieties of one species (Wien. Mon., VII, p. 213). Standinger also cites *Taygete* as the Labrador form or var. of *Bore* (Cat., p. 27). Scudder and W. H. Edwards consider them as identical and that *Taygete* is but a synonym of *Bore*. I am constrained to agree with the first two authors that there is at least a varietal difference between the Lapland examples and those from Labrador. I here append the nomenclature of the European form for the better convenience of the interested reader.

BORE, ESP., (*Pap. B.*), Schm., I, 2, t. 100, Cont. 55, f. 1, t. 108, f. 1, (1790); Schm., Neu. Mag., p. 415, (1792); Hub., Eur. Schm., I, f. 134-136, 756, (1793-1794); Ochs., Schm., Eur., I, 1, p. 205, (1807); (*Erebia B.*) Dalm., Pap. Succ., 80, (1824); Meig., Eur. Schm., t. 31, f. 1, (1829-1832); (*Chion. B.*) Bll., Icon. Hist., t. 37, f. 1, (? 2, 3), (1832); (*Satyr. B.*) Dup., Lep., I, p. 209, t. 32, f. 1, 2, (1832); Zett., Ins. Lap., p. 902, n. 7, (1840); (*Chion. B.*) H-S., Schm., Eur., t. 26, f. 119-122, (1843-1856); Dbldy.-Hew., Gen. Diur. Lep., II, p. 383, (1850-1852); (*Oeneis B.*) Stgr., Cat., p. 27, (1871).

Chion. Taygete, var. *Bore*, Mosch., Wien. Ent. Mon., VII, p. 214, (1863).

Pap. Norna, Quens., Act. Hol., t. 10, f. 1, 2, (1791).

Pap. ? Fortunatus, Fabr., Ent. Syst., III, 1, p. 214, (1793).

Pap. Melissa ?, Fabr., Syst. Ent., p. 513, (1775); Sp. Ins., II, p. 104, (1781); Mant. Ins., II, p. 57, (1787); (*Eneis M.*) Kirby, Cat., p. 70, (1871).

Pap. Polixenes ?, Fabr., Syst. Ent., p. 484, (1775); Sp. Ins., II, p. 59, (1781); Mant. Ins., II, p. 28, (1787); (*Neonympha ? P.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 376, (1846-1850); (*Eneis P.*) Kirby, Cat., p. 70, (1871); Scud., Buff. Bull., II, p. 240, (1875).

318. *CHRYXUS*, DBLDY.-HEW., Gen. Diur. Lep., II, p. 383, t. 64, (1851); W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 82, (1863); Scud., l. c., V, p. 5, (1865); Reak., l. c., VI, p. 145, (1866); (*Eneis C.*) Kirby, Cat., p. 69, (1871); Scud., Buff. Bull., II, p. 240, (1875); (*Chion. C.*) Mead, Wheeler's Rep., V, p. 777, (1875); Putnam, Proc. Davenport Acad. Nat. Sc., I, p. 189, (1876).

Chion. Chrixus, Pack., Guide, p. 263, (1869).

Very close to the Lapland *Norna*, Thnb.

- †319. *UHLERI*, REAK., Proc. Ent. Soc., Phil., VI, p. 143, (1866); (*Eneis U.*) Butl., Cat. Satyr. B. M., 163, (1868); Kirby, Cat., p. 69, (1871); (*Chion. U.*) Streck., Lep., Rhop.-Het., p. 28, t. 4, f. 5, 5, (1873); Mead, Wheeler's Rep., V, p. 776, (1875); (*Oeneis U.*) Scud., Buff. Bull., II, p. 240, (1875).

Very closely allied to the Siberian *Scutda*, Ev.

320. *NEVADENSIS*, BDL. MSS., Feld., Reise Nov. Lep., p. 489, t. 69, f. 4, 5, (1867); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 163, (1864); (*Oeneis N.*) Butl., Cat. Satyr. B. M., p. 161, (1868); Kirby, Cat., p. 69, (1871); Scud., Buff. Bull., II, p. 240, (1875).

Rocky
Mts. of
Montana and
Colorado.

Rocky
Mts. of
Colorado.

California,
Oregon,
Vancouver's
Island.

- Eneis Gigas*, Butl., Cat. Satyr. B. M., p. 161, t. 2, (1868); Kirby, Cat., p. 69, (1871); (*Chion. G.*) W. H. Edwds., Butt. N. Am., II, t. 1, Chion., f. 5, 6, ♀, (1874), l. c., t. 2, Chion., f. 1, 2, ♂, (1875); (*Oeneis G.*) Scud., Buff. Bull., II, p. 240, (1875).
Chion. Californica, Btl., Lep. Cal., p. 62, (1869); (*Eneis C.*) Kirby, Cat., p. 69, (1871); (*Chion. C.*) W. H. Edwds., Butt. N. Am., II, t. 2, Chion., f. 3-6, (1875).
Chion. Iduna, W. H. Edwds., Butt. N. Am., II, t. 1, Chion., f. 1-4, (1874); (*Oeneis I.*) Scud., Buff. Bull., II, p. 240, (1875).

It is nearer to *Aello* than any other old-world species.

There are no possible grounds for considering *Gigas*, *Californica* and *Iduna* as distinct species from *Nevadensis*. Mr. W. H. Edwds. in his Butt. N. Am. dwells at considerable length on what he imagines are many differences of specific value, but which I consider nothing more than the slight differences usually found between different individuals of the same species. Much stress has been laid by both Scudder and W. H. Edwds. on the shape of the discal band of under side of secondaries in the various species of this genus. To show the fallaciousness of any distinction founded on such a basis, I would say that on one of the seven original examples that furnished W. H. Edwds.' types of *Iduna*, received by me from Jas. Behrens, the inner edge of this band is not at all like the figures in W. H. Edwds.' work, but is almost the same as in the figure of *Nevadensis* in the great work of the *Novara*. Farther, Scudder in Proc. Phil. Soc., 1865, held *Chryxus* and *Calais* as different species, attempting to prove their distinctness by the different outline of the discal bands, of which he gave figures. Nevertheless, he himself afterwards (though wrongly) united the two, placing *Calais* as the ♀ of *Chryxus*; *Calais*, however, really is *Taygete*, Hub., from which Scudder in same article also separated it by outlines of discal band. This same *Taygete*, in a long suite of examples now before me, presents as great differences in the outline of the discal bands as is seen between any of the figures of *Iduna*, *Gigas*, *Californica* and *Nevadensis*. In various examples of *Uhleri* the difference is yet greater; in some the band is distinctly defined on its outer edge, in others it has no limit, but the marbling continues indiscriminately to the outer margin of the wing.

The number of ocelli or spots on upper side vary in different examples of the same species very much; of *Norna* I have examples with two spots on primaries and none on secondaries, with two on primaries and one on secondaries, with one on primaries and one on secondaries, with one on primaries and none on secondaries, and with three on primaries and two on secondaries; of *Uhleri* one of the types has three on primaries and four on secondaries, the other has four on primaries and five on secondaries, one of which (the subapical) is quite small and was overlooked by Reakirt in his description; other examples have only one spot on primaries and two or three on secondaries. *Chryxus* I have with one spot on primaries and none on secondaries, and another with two on primaries and one on secondaries.

Chion. Tarpeia, an Altaian species, has been by some authors placed with the N. Am. fauna, but without doubt erroneously; I do not believe it ever has been or ever will be found to occur in this country; but as some may feel further interested in the matter, I here give its nomenclature.

TARPEIA, PALL., Reis., I, p. 18, n. 59, (1771); Esp., Schmett., I, 2, p. 190, t. 83, (1783); Brk., Schmett., I, p. 101, (1788);

- Ochs., Schmiett., I, 1, p. 203, (1807); Hub., Eur. Schmiett., I, f. 779-782, (1824-1826); Meigen, Eur. Schmiett., I, p. 128, t. 30, (1829); (*Satyr. T.*) Dup., Lep., I, p. 207, t. 31, (1832); (*Chion. T.*) H-S., Schmiett. Eur., I, p. 67, f. 61-64, (1843-1844); Frr., Neu. Beit., V, t. 427, (1845); Mosch., Wien. Ent. Mon., VII, p. 184, (1863); (*Oeneis T.*) Butl., Cat. Satyr. B. M., p. 161, (1868); Stgr., Cat., p. 27, (1871); Scud., Buff. Bull., II, p. 239, (1875).
Pap. Tarpejus, Fabr., Mant. Ins., II, p. 32, (1787); Ent. Syst., III, 1, p. 214, (1793); Gmel., Syst. Nat., I, 5, 2285, 498, (1788); Herbst, Naturesyst. Ins. Schmiett., VIII, p. 210, t. 213, (1796).
Satyr. Tarpeius, Godt., Enc. Meth., IX, p. 519, (1823).
Pap. Celimene, Cram., Pap. Ex., IV, t. 375, (1782); (*Eneis C.*) Kirby, Cat., p. 69, (1871).

GENUS 6. SATYRUS, LATR.

321. RIDINGSII, W. H. EDWDS., Proc. Ent. Soc., Phil., IV, p. 201, (1865); Reak., l. c., VI, p. 145, (1866); (*Hipparchia R.*) Kirby, Cat., p. 82, (1871); (*Satyr. R.*) Streck., Lep., Rhop.-Het., p. 29, t. 4, (1873); Mead, Wheeler's Rep., V, p. 774, (1875); (*Neominois R.*) Scud., Buff. Bull., II, p. 241, (1875).
Chionobas Stretchii, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 192, (1870). Colorado, Montana, Nevada, Utah.
322. STIENELE, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 308, (1852); Morris, Syn., p. 77, (1862); Behr, Proc. Cal. Acad. Nat. Sc., III, p. 161, (1864); (*Hipp. S.*) Kirby, Cat., p. 81, (1871); (*Satyr. S.*) Streck., Lep., Rhop.-Het., p. 30, t. 4, (1873); (*Cereyonis S.*) Scud., Buff. Bull., II, p. 242, (1875). California.
323. SILVESTRIS, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 162, (1861); (*Satyr. Syl.*) Behr, Proc. Cal. Acad. Nat. Sc., III, p. 163, (1864); (*Enodia Syl.*) Reak., Proc. Ent. Soc., Phil., VI, p. 145, (1866); (*Hipp. Syl.*) Kirby, Cat., p. 81, (1871); (*Cereyonis S.*) Scud., Buff. Bull., II, p. 242, (1875). California.
324. CHARON, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 69, (1872); Mead, Wheeler's Rep., V, p. 773, (1875).
Cereyonis Oetus, Scud., (nec Bdl.), Buff. Bull., II, p. 242, (1875). Colorado, Montana, N. Mexico, S. California
- †*325. OETUS, BDL., Lep. Cal., p. 63, (1869); (*Cereyonis O.*) Scud., Buff. Bull., II, p. 242, (1875). California.
Hipp. Sylvestris, Kirby, Cat., p. 81, (1871).
 There is some confusion in regard to *Oetus*. Kirby, in his Cat., places it as a synonym of *Silvestris*, W. H. Edwds., whilst Seudder in Buff. Bull. provisionally cites *Charon*, W. H. Edwds., as a synonym of *Oetus*. No American lepidopterist, as far as I am aware of, is acquainted in nature with *Oetus*, Bdl.; but I feel fully assured that the three names, *Silvestris*, *Oetus* and *Charon*, belong to two species only; but whether *Oetus* be a synonym of *Silvestris*, or *Charon* of *Oetus*, can only be known by comparison of types.
326. MEADII, W. H. EDWDS., (*Erebia M.*), Trans. Am. Ent. Soc., IV, p. 70, (1872); (*Satyr. M.*) Mead, Wheeler's Rep., V, p. 774, (1875); (*Cereyonis M.*) Scud., Buff. Bull., II, p. 242, (1875). Colorado, Utah, Arizona.

327. PHOCUS, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 14, (1874); (*Cercyonis P.*) Scud., Buff. Bull., II, p. 242, (1875). Brit. Col., Oregon, Montana.
328. NEPIHELE, KIRBY, (*Hipparchia N.*), Faun. Am. Bor., IV, p. 297, (1837); (*Ereb. N.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 380, (1850-1852); (*Hipp. N.*) Emm., Agr. Nat. Hist. N. Y., p. 213, t. 33, (1854); (*Ereb. N.*) Morris, Syn., p. 76, (1862); (*Hipp. N.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 306, f. 130, (1862); (*Satyr. N.*) W. H. Edwds., Proc. Ent. Soc., Phil., p. 195-200, (1866); (*Hipp. N.*) Kirby, Cat. p. 81, (1871); (*Minois N.*) Scud., Syst. Rev. N. Am. Butt., 6, (1872), (*Cercyonis N.*) Buff. Bull., II, p. 242, (1875). Canada, British Columbia; northern U. S. east of Rocky Mts.
- Larva on grass.
- var. a. ARIANE, BDL., Ann. Soc. Ent. Fr., 2me Ser. X, p. 307, (1852); Morris, Syn., p. 77, (1862); (*Enodia A.*) Reak., Proc. Ent. Soc., Phil., VI, p. 145, (1866); (*Hipp. A.*) Kirby, Cat., p. 81, (1871); (*Cercyonis A.*) Scud., Buff. Bull., II, p. 242, (1875). California.
- With the exception that the under side is a little paler and the striae not as sharply defined, this presents scarcely any difference from the stem form. Sometimes the black spot at inner angle on upper side of primaries is accompanied by a contiguous smaller one.
- var. b. BOOPIS, BEHR, Proc. Cal. Acad. Nat. Sc., III, p. 164, (1864); W. H. Edwds., Proc. Ent. Soc., Phil., VI, p. 196, (1866); (*Hipp. B.*) Kirby, Cat., p. 81, (1871); (*Cercyonis B.*) Scud., Buff. Bull., II, p. 242, (1875). Oregon, Montana, California.
- Devoid of ocelli on under surface of secondaries.
- †*var. c. GABBI, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 193, (1870); (*Hipp. G.*) Kirby, Cat., p. 644, (1871); (*Cercyonis G.*) Scud., Buff. Bull., II, p. 242, (1875). Oregon.
- I have had no opportunity of examining the types of this insect; from the description I cannot separate it from *Nephele* or *Ariane*.
- var. d. ALOPE, FABR., (*Pap. A.*), Ent. Syst., III, 1, p. 229, (1793); Herbst, Natursyst., VIII, p. 296, (1796); (*Satyr. A.*) Godt., Enc. Meth., IX, p. 524, (1823); Bdl.-Lec., Lep. Am. Sept., p. 228, (1833); (*Hipp. A.*) Harris, Hitch. Rep. Geo. Min., etc., Mass., Ed. 1, p. 590, (1833); (*Enodia A.*) Dbldy., List Lep. B. M., I, p. 136, (1844); Dbldy.-Hew., Gen. Diur. Lep., II, p. 392, (1850-1852); (*Hipp. A.*) Emm., Agr. Nat. Hist. N. Y., p. 213, t. 33, (1854); (*Satyr. A.*) Morris, Syn., p. 76, (1862); (*Hipp. A.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 305, f. 127, (1862); (*Enodia A.*) Reak., Proc. Ent. Soc., Phil., VI, p. 145, (1866); (*Satyr. A.*) W. H. Edwds., l. c., p. 196-200, (1866); (*Hipp. A.*) Kirby, Cat., p. 81, (1871); (*Minois A.*) Scud., Syst. Middle and Western States from Atlantic to the Rocky Mts.

Rev. N. Am. Butt., 5, (1872); (*Cercyonis A.*) Buff. Bull., II, p. 242, (1875).

Larva on grass.

With a broad buff or ochraceous yellow band across outer half of primaries on both surfaces; within this band are the two black ocelli.

†ab. a. ♂—On the upper surface of primaries there are not the slightest traces of the two ocelli, neither any evidence of the one usually on secondaries not far from anal angle. Beneath, on the primaries the ocelli are indicated by two mere points, on secondaries there is only one small one not far from the anal angle. Mus. Streck. Maryland.

†ab. b. ♂—With three ocelli on upper side of secondaries, otherwise normal. Mus. Streck. Maryland.

var. c. PEGALA, FABR., (*Pap. P.*), Syst. Ent., p. 494, (1775); Sp. Ins., II, p. 76, (1781); Mant. Ins., II, p. 38, (1787); Ent. Syst., III, 1, p. 230, (1793); (*Satyr. P.*) Godt., Enc. Meth., IX, p. 524, (1823); Dbldy.—Hew., Gen. Diur. Lep., II, p. 398, (1850–1852); Morris, Syn., p. 77, (1862); W. H. Edwds., Proc. Ent. Soc., Phil., VI, p. 195, (1866); (*Hipp. P.*) Kirby, Cat., p. 81, (1871); (*Cercyonis P.*) Seud., Buff. Bull., II, p. 241, (1875).

Pap. Pegala, Herbst, Natursyst. Ins. Schmiett., VIII, p. 298, (1796).

♀ *Satyrus Alope*, Bdl.—Lee., Lep. Am. Sept., t. 59, (1833).

Larger size than any of the preceding forms. ♂ with only one ocellus on primaries (towards the apex); ♀ with two ocelli.

On under surface of secondaries the ocelli are large and conspicuous; the striation of under surface sharply defined.

Bdl.—Lee.'s figures undoubtedly represent ♀ of this form, and not *Alope* as they have cited it.

var. f. WHEELERI, W. H. EDWDS., Trans. Am. Ent. Soc., IV, p. 343, (1873); Mead, Wheeler's Rep., V, p. 773, t. 39, (1875); (*Cercyonis W.*) Seud., Buff. Bull., II, p. 242, (1875). S. California, Arizona.

Satyrus Hoffmani, Streck., Lep. Rhop.—Het., p. 31, t. 4, ♀, p. 66, t. 8, ♂, (1873).

This is one of those wonderful aberrant forms peculiar to Arizona and adjacent region. The ♂ is dark, much the same colour as *Nephele*, *Boopis*, etc., but the ♀ (which Mr. W. H. Edwds. so curiously mistook in his description for the ♂) is very pale on upper surface and white beneath. Both sexes are devoid of the broad yellow band of *Alope* and *Pegala*, but have two ocelli on primaries, the one nearest the apex is always double; on under side of secondaries are six ocelli in two different rows of three each, the middle one of the three nearest to apex oblong and sharply pointed outwardly.

The ♂ figure in Wheeler's 5th Rep. is far too pale in colour.

Dr. Behr, speaking of *Sat. Ariane*, says in Proc. Cal. Acad., III, p. 164: "I confess I cannot find any constant mark of difference between this species and *S. Alope*, *Nephele*, and *Pegala*, however different at first glance their forms may appear, I am very much inclined to consider them local aberrations of one far spread species that gradually slopes from *S. Pegala*, Fabr., through *S. Ariane*, Bdl., to *S. Nephele* and

S. Alope, Fabr., in a similar way as the Gerontogæic *P. Egeria*, L., looks very different from its African form *P. Niphia*, Fabr., with which, nevertheless, it is insensibly united by its intermediate form *P. Meone*." I differ from the above only in that I think the more northern *Nephela* was the stem form from which originally emanated *Ariane* and *Boopis* in the west and *Alope* in the east, and through the latter the splendid *Pegala* in the south, whilst acclimatization in the dry salt regions of Utah and Arizona resulted in the widely aberrant *Wheeleri*.

GENUS 7. PARARGE, HUB.

329. *CANTHUS*, BDL.-LEC., (*nec* Linn.), (*Satyrus* C.) Lep. Am. Canada;
Sept., t. 60, (1833); (*Neon*. C.) Morris, Syn., p. New Eng.
74, (1862); (*Eupt*. C.) Kirby, Cat., p. 55, (1871). States, N.
Hipparchia Transmontana, Gosse, Newm. Ent., p. York, N.
138, (1841). Jersey,
Hipparchia Boisduvallii, Harris, Ins. Inj. Veg., Ohio,
Flint's Ed., p. 305, f. 128, (1862). Michigan,
Argus Eurydice, Scud., (*nec* Linn.), Syst. Rev. N. Indiana,
Am. Butt., 6, (1872); (*Satyrodes* E.) Buff. Bull., Illinois.
II, p. 242, (1875).

Larva on grass.

The *Eurydice*, L., (Amœn. Acad. Cent. Ins., VI, p. 406, n. 65, 1764), of which *Canthus*, L., (Syst. Nat., Ed. XII, p. 768, 1767), is a synonym, seems to be an entirely different insect from this, and is most probably *Pap. Arganthe*, Cram., (Pap. Ex., III, t. 204, C, D), a S. Am. species which is on the upper surface uniform brown devoid of all spots. The following is all the description of *Canthus* given by Linn. in the Syst. Nat. (Ed. XII): "Alis integerrimis fuscis: subtus primoribus ocellis quatuor, posticis senis. Amœn. Acad., 6, p. 406, n. 65. Papilio Eurydice. Habitat in America septentrionalis."

The description of "*Eurydice*" in Amœn. Acad., referred to in the preceding, is:

"Papilio *Eurydice* D. alis fuscis: subtus primoribus ocellis quatuor, posticis sex.

Habitat in Philadelphia. Dr Geer.

Similis *Pap. Hyperante*. Alae integerrime, supra fuscae; posticae obsoletus ocellatae. Primores subtus ad marginem posteriorum ocellis quatuor nigris pupilla alba. Posticae ocellis quinque intra marginem posticum, & sexto remotiori."

Herbst (Natuersyst., VIII, p. 70, t. 192) has figured as *Canthus* Cramer's *Arganthe*, which he also refers to *Eurydice*, Linn.

Also Fabricius in Ent. Syst., III, p. 157, gives *Eurydice*, *Canthus*, L., and *Arganthe*, Cram., as synonymical.

GENUS 8. COENONYMPHA, HUB.

330. *CALIFORNIA*, DBLDY.-HEW., Gen. Diur. Lep., II, p. 398, California
t. 67, (1850-1852); Kirby, Cat., p. 99, (1871); and adjacent
Scud., Buff. Bull., II, p. 244, (1875). territory.
Satyrus Californius, Balt., Ann. Soc. Ent. Fr., 2me
Ser. X, p. 309, (1852).
var. a. *GALACTINUS*, BDL., (*Satyrus* G.), Ann. Soc. Ent.
Fr., 2me Ser. X, p. 309, (1852); (*Cocn*. G.) Kirby.
Cat., p. 99, (1871).
Cocn. Galactina, Morris, Syn., p. 80, (1862); Behr,
Proc. Cal. Acad. Nat. Sc., III, p. 164, (1864).
var. b. *CERES*, BUTL., Ent. Mon. Mag., IV, p. 78,
(1866).

var. c. ERYNGII, HY. EDWDS., Proc. Cal. Acad. Nat. Sc., V, 6, (1876).

This is a very variable species on the under side, in some instances being yellowish white, in others obscured or dusted heavily with grey. It is one of the commonest of the Californian butterflies.

331. INORNATA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 163, (1861); Morris, Syn., p. 328, (1862); Seud., Buff. Bull., II, p. 244, (1875). Nevada, Montana, Oregon, Vanco. Isld., Brit. Col. Oregon.
- C. Typhon*, var. *h. Inornata*, Kirby, Cat., p. 100, (1871).
332. AMPELOS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 213, (1871); Seud., Buff. Bull., II, p. 244, (1875).
333. PAMPHILUS, LINN., (*Pap. P.*), Syst. Nat., Ed. X, 472, (1758); Ed. XII, 791, (1767); Fami. Succ., p. 273, (1761); Fabr., Syst. Ent., p. 529, (1775); Sp. Ins., II, p. 66, (1781); Ent. Syst., III, 1, p. 221, (1793); Esp., Schmett., I, 1, t. 21, (1777), t. 78, f. 4, var., (1782); Bergs., Nom., t. 88, (1779); Herbst, Natur-syst. Ins. Schmett., VIII, p. 40, t. 186, f. 7, 8, t. 187, f. 1, 2, f. 3, 4, ab., (1796); Ochs., Schmett. Eur., I, 1, p. 305, (1807); (*Satyrus P.*) Godt., Enc. Meth., IX, p. 549, (1823); (*Hipp. P.*) Duncan, Nat. Lib. Ent., III, p. 207, t. 26, (1835); (*Cten. P.*) Kirby, Cat., p. 99, (1871); Stgr., Cat., p. 32, (1871). California, ? Oregon, Europe, Siberia.
- Pap. Menalcas*, *Podas*, Mus. Græc., p. 78, (1761); Scop., Ent. Carn., p. 458, (1763).
- Pap. Nephela*, *Hufn.*, Berl. Mag., II, p. 78, (1766); Brk., Nat. Schmett., I, p. 87, (1788); Hüb., Eur. Schmett., I, f. 237-239, (? 1797).
- Pap. Gardetta*, *De Loche*, Mém. Acc. Tor., VI, 2, p. 146, t. 7, (1801).
- †*Cten. Pamphiloides*, *Reak.*, Proc. Ent. Soc., Phil., VI, p. 146, foot-note, (1866); Butl., Cat. Sat. B. M., p. 44, (1868); Seud., Buff. Bull., II, p. 243, (1875).
- Cten. Pamphilus*, var. *b. Pamphiloides*, Kirby, Cat., p. 99, (1871).
- I possess Reakirt's original type from California, which differs in nowise from the ordinary European form.
334. OCHRACEA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 163, (1861); Morris, Syn., p. 328, (1862); Reak., Proc. Ent. Soc., Phil., VI, p. 145, (1866); Kirby, Cat., p. 100, (1871); Mead, Wheeler's Rep., V, p. 772, (1875); Seud., Buff. Bull., II, p. 244, (1875). Montana, New Mexico, Arizona, Brit. Col.
- I have no doubt but this is a variety of *Typhon*, Rott., (Naturf., VI, p. 15, 1775), a species ranging all over Europe and Northern Asia, and of which *Darus*, Fabr., is a synonym.
- †*335. BRENDA, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 375, (1869); Kirby, Cat., p. 100, (1871); Seud., Buff. Bull., II, p. 243, (1875). Los Angeles, Cala.
- †*336. KODIAK, W. H. EDWDS., Trans. Am. Ent. Soc., II, p. 375, (1869); Seud., Buff. Bull., II, p. 244, (1875). Kodiak.
- Cten. Kodiak*, Kirby, Cat., p. 100, (1871).

FAMILY X. HESPERIDÆ.

GENUS 1. EUDAMUS, SWAINS.

{ *Goniurus*, Hüb.
Goniuris, West.
Goniloba, West. }

337. PROTEUS, LINN., (*Pap. P.*), Syst. Nat., Ed. X, p. 484, (1758); Mus. Lud. Ulr., p. 333, (1764); Syst. Nat., Ed. XII, I, 2, p. 794, (1767); Clerck, Icones, t. 42, (1764); Fabr., Syst. Ent., p. 532, (1775); Sp. Ins., II, p. 132, (1781); Mant. Ins., II, p. 85, (1787); Ent. Syst., III, 1, p. 331, (1793); Cram., Pap. Exot., III, t. 260, D, E, (1782); Abb.-Sm., Ins. Ga., I, t. 18, (1797); (*Urbanus fortis* P.) Hüb., Samm. Exot. Schmett., I, (1806-1816); (*Goniurus* P.) Verz. Bek. Schmett., p. 104, (1816); (*Hesp. P.*) Latr., Enc. Meth., IX, p. 730, (1823); (*Eudamus* P.) Bdl.-Lec., Lep. Am. Sept., t. 69, (1833); (*Goniuris* P.) Dbldy.-Hew., Gen. Diur. Lep., II, p. 511, t. 79, var., (1850-1852); (*Eud. P.*) Chenu, Pap. Diur., p. 224, f. 374, (1851-1853); La Sagra, Hist. Cuba, An. Art., p. 622, (1857); (*Hesp. P.*) Morris, Syn., p. 106, (1862); (*Goniur. P.*) H-S., Reg. Corr.-blatt, p. 56, (1865); (*Thymeles* P.) Kirby, Cat., p. 570, (1871); Scud., Syst. Rev. Am. Butt., p. 69, (1872).
 —————, Merian, Met. Ins. Sur., t. 63, (1719).
 Larva on *Clitoria Mariana*, *Phascolus Odoratus*.
338. SIMPLICIUS, STOLL, (*Pap. S.*), Suppl. Cram., t. 39, 6, 6 E, (1791); (*Goniurus* S.) Hüb., Verz. Bek. Schmett., p. 104, (1816); (*Goniuris* S.) Dbldy.-Hew., Gen. Diur. Lep., II, p. 511, (1850-1852); (*Eud. S.*) La Sagra, Hist. Cuba, An. Art., p. 622, (1857); (*Thymeles* S.) Kirby, Cat., p. 569, (1871); Scud., Syst. Rev. Am. Butt., p. 67, (1872).
Hesp. Eurycles, Latr., Enc. Meth., IX, p. 730, (1823).
339. LYCIDAS, ABB.-SM., (*Pap. L.*), Ins. Ga., I, t. 20, (1797); (*Hesp. L.*) Latr., Enc. Meth., IX, p. 751, (1823); (*Eud. L.*) Bdl.-Lec., Lep. Am. Sept., t. 71, (1833); (*Hesp. L.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 527, (1850-1852); Morris, Syn., p. 106, (1862); (*Eud. L.*) Scud., Proc. Ess. Ins., III, p. 170, (1862); Proc. Chicago Acad., p. 334, (1868); (*Thymeles* L.) Kirby, Cat., p. 571, (1871); (*Achalarus* L.) Scud., Syst. Rev. Am. Butt., p. 71, (1872).
Proteides Lyciades, Hüb., Verz. Bek. Schmett., p. 105, (1816); Geyer, Zutr. Ex. Schmett., p. 10, f. 621, 622, (1832).
 Larva on *Desmodium*.

Southern
 United
 States, W.
 Indies.

Texas, Ari-
 zona, Mexi-
 co, Cent.
 Am., Brazil,
 Surinam.

Pennsylva-
 nia south-
 ward to the
 gulf, west-
 ward to Lon-
 isiana and
 Texas.

340. *TITYRUS*, FABR., (*Pap. T.*), Syst. Ent., p. 532, (1775); Canada; Sp. Ins., II, p. 132, (1781); Mant. Ins., II, p. 85, United States (1787); Ent. Syst., III, 1, p. 331, (1793); Abb.- and territories from Atlantic to Pacific; Antilles; Cent. Am. Sm., Ins. Ga., I, t. 19, (1797); (*Hesp. T.*) Latr., Enc. Meth., IX, p. 743, (1823); (*Eud. T.*) Bdl.-Lec., Lep. Am. Sept., t. 72, (1833); (*Goniloba T.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 512, (1850-1852); (*Eud. T.*) Emmons, Agr. Nat. Hist. N. Y., p. 215, t. 38, (1854); (*Gon. T.*) La Sagra, Hist. Cuba, An. Art., p. 632, (1857); (*Eud. T.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 310, f. 133, 134, t. 5, f. 1, (1862); (*Goniloba T.*) Morris, Syn., p. 112, (1862); (*Eud. T.*) Scud., Proc. Essex Ins., III, p. 170, (1862), Proc. Chicago Acad., p. 334, (1868); Pack., Guide, p. 269, (1869); (*Thymele T.*) Kirby, Cat., p. 571, (1871); (*Epargyreus T.*) Scud., Syst. Rev. Am. Butt., p. 70, (1872); (*Goniloba T.*) Putnam, Proc. Dav. Acad., I, p. 197, (1876).
Pap. Clarus, Cram., Pap. Ex., I, t. 41, E, F, (1779); (*Epargyreus C.*) Hüb., Verz. Bek. Schmett., p. 105, (1816).
 Larva on *Robinia Pseudacacia*, *R. Viscosa*, *R. Hispidula*.
341. *CELLUS*, BDL.-LEC., (*Eudamus C.*), Lep. Am. Sept., t. 73, (1833); (*Hesp. C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 526, (1850-1852); Morris, Syn., p. 105, (1862); (*Spathilepia C.*) Kirby, Cat., p. 578, (1871).
Cecrops Festus, Hüb.-Gey., Zutr. Ex. Schmett., p. 27, f. 907, 908, (1837); (*Hesp. F.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 526, (1850-1852); (*Thymele F.*) Kirby, Cat., p. 571, (1871).
- †342. *EPIGENA*, BUTL., Trans. Ent. Soc. Lond., p. 493, (1870); (*Thymele E.*) Kirby, Cat., p. 655, (1871).
Eud. Orestes, Lint., MSS. W. H. Edwds., Trans. Am. Ent. Soc., VI, (1877).
 Texas, Mexico.
343. *BATHYLLUS*, ABB.-SM., (*Pap. B.*), Ins. Ga., I, t. 22, (1797); (*Eud. B.*) Latr., Enc. Meth., IX, p. 764, (1823); Bdl.-Lec., Lep. Am. Sept., t. 74, (1833); (*Hesp. B.*) Morris, Syn., p. 106, (1862); (*Eud. B.*) Scud., Proc. Ess. Ins., III, p. 170, (1862), Proc. Chicago Acad., p. 335, (1868); Pack., Guide, p. 269, (1869); (*Ethilla B.*) Kirby, Cat., p. 578, (1871); (*Thorybes B.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).
Gon. Bathyllus, Dbldy.-Hew., Gen. Diur. Lep., II, p. 514, (1850-1852), (*Bathyllus*, l. c., p. 534); La Sagra, Hist. Cuba, An. Art., p. 638, (1857).
 Larva on wild bean, *Desmodium Dillenii*.
- var. a. *PYLADES*, SCUD., Proc. Bost. Soc. Nat. Hist., XIII, p. 207, (1870); (*Ethilla P.*) Kirby, Cat., p. 578, (1871); (*Thorybes P.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).
 Canada; U. S. and Ter. from Atlantic to Pacific.

Eud. Bathyllus, Harris, (nec Abb.-Sm.), Ins. Inj. Veg., Flint's Ed., p. 312, f. 135, (1862).

Thorybes Nevada, Scud., Syst. Rev. N. Am. Butt., p. 71, (1872).

Larva on various species of *Glycine* and *Hedysarum*.

The white marks on primaries much smaller, sometimes obsolete.

344. AMYNTAS, FABR., (*Pap. A.*), Syst. Ent., p. 533, (1775); Sp. Ins., II, p. 133, (1781); Mant. Ins., II, p. 86, (1787); (*Pamphila A.*) Kirby, Cat., p. 605, (1871). S. Florida, W. Indies, Amazons.

Polygonus lividus, Hüb., Samm. Exot. Schmett., II, (1816-1841); (*Astraptes L.*) Verz. Bek. Schmett., p. 103, (1816).

Hesp. Savignyi, Latr., Enc. Meth., IX, p. 741, (1823); (*Gon. S.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 512, (1850-1852); La Sagra, Hist. Cuba, An. Art., p. 631, (1857); H-S., Reg. Corr.-blatt, p. 54, (1865); (*Acolastus S.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).

345. HESUS, DBLDY.-HEW., (*Goniloba H.*), Gen. Diur. Lep., II, p. 513, t. 78, f. 5, (1850-1852); (*Thymele H.*) Kirby, Cat., p. 574, (1871); (*Epargyreus H.*) Scud., Syst. Rev. Am. Butt., p. 70, (1872). Texas, Mexico, Cent. Am., Amazons.

GENUS 2. PYRRHOPYGE, HUB.

346. ARAXES, HEW., (*Eryc. A.*), Descrip. Hesp., p. II, n. 3, (1867); (*Myseelus A.*) Kirby, Cat., p. 587, (1871). Arizona, Mexico.

GENUS 3. ERYCIDES, HUB.

347. BATABANO, LEF., (*Eudamus B.*), La Sagra, Hist. Cuba, An. Art., p. 624, (1857); (*Eryc. B.*) H-S., Reg. Corr.-blatt, XIX, p. 56, (1865); Kirby, Cat., p. 589, (1871). S. Florida, Cuba.

Erycides Mancinus, Herr-Sch., Regensb. Corr.-blatt, XVI, p. 143, (1862).

348. URANIA, WEST., Dbldy.-Hew., Gen. Diur. Lep., II, p. 510, t. 79, f. 1, (1850-1852); Kirby, Cat., p. 587, (1871); Scud., Syst. Rev. Am. Butt., p. 67, (1872). Texas, Mexico, Cent. Am.

†*349. SANGUINEA, SCUD., Syst. Rev. Am. Butt., p. 68, (1872). Texas.

†*350. TEXANA, SCUD., Syst. Rev. Am. Butt., p. 68, (1872). Texas.

GENUS 4. ÆGIALE, FELD.

(*Megathymus*, Scud.)

351. YUCCÆ, BDL.-LEC., (*Eudamus? Y.*), Lep. Am. Sept., t. 70, (1833); (*Castnia Y.*) Walker, List Lep. B. M., VII, p. 1583, (1856); (*Goniloba Y.*) Morris, Syn., p. 113, (1862); (*Ægiale? Y.*) Kirby, Cat., p. 608, (1871); (*Megathymus Y.*) Scud., Syst. Rev. Southern States from S. Carolina to the Gulf of Mexico.

Am. Butt., p. 82, (1872), Hist. Sketch Gen. Names for Butt., p. 213, (1875); Grote, Can. Ent., VII, p. 173, (1875); Riley, Trans. Acad. Sc., St. Louis, III, p. 323, (1876), 8th Mo. Ent. Rep., p. 169, (1876), 9th Mo. Ent. Rep., p. 129, (1877); (*Egiale* Y.) Streck., Proc. Acad. Nat. Sc., Phil., p. 149, (1876).

Larva burrows in the stems of *Yucca Aloifolia*, Y. *Gloriosa* and *Y. Filamentosa*.

- ‡352. COFAQUI, STRECK., Proc. Acad. Nat. Sc., Phil., p. 148, (1876).

Georgia;
Llano Estacado, Texas.

GENUS 5. PAMPHILA, FABR.

353. HURON, W. H. EDWDS., (*Hesp. H.*), Proc. Ent. Soc., Phil., II, p. 16, t. 1, (1863); Reak., l. c., VI, p. 150, (1866); (*Pam. H.*) Kirby, Cat., p. 600, (1871); (*Atalopedes H.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872).

var. a. CAMPESTRIS, BDL., (*Hesp. C.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 316, (1852); Morris, Syn., p. 108, (1862); (*Pam. C.*) Kirby, Cat., p. 602, (1871); (*Atalopedes C.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872).

354. PHYLÆUS, DRURY, (*Pap. P.*), Ill. Ex. Ent., I, t. 13, (1770); (*Hesp. P.*) Latr., Enc. Meth., IX, p. 767, (1823); (*Hesp. Phyleus*) Bdl.-Lec., Lep. Am. Sept., t. 78, (1833); (*Pam. Phylæus*) Dbldy.-Hew., Gen. Dirr. Lep., II, p. 522, (1850-1852); La Sagra, Hist. Cuba, An. Art., p. 645, (1857); Kirby, Cat., p. 600, (1871); (*Pam. Phyleus*) Morris, Syn., p. 118, (1862); H.-S., Reg. Corr.-blatt, XIX, p. 53, (1865); (*Euthymus Phylæus*) Scud., Syst. Rev. Am. Butt., p. 77, (1872).

Thym. Augias, Hüb., Zutr. Ex. Schmett., f. 227, 228, (1823).

Pam. Bucephalus, Steph., Ill. Brit. Ent. Haust., p. 102, t. 10, ♀, (1828), Cat. Brit. Ins. Haust., p. 28, (1829); Humph.-West., Brit. Butt., p. 126, t. 40, ♂, (1841); Wood, Ind. Ent., p. 10, (1845).

Pam. Phylæus, Emm., Nat. Hist. N. York Agr., V, p. 215, (1854).

I doubt if Emmons was acquainted with the true *Phylæus*, from his asserting that it "is a very common butterfly in western Massachusetts," so I merely add his citation for what it may be worth.

Larva on *Panicum Sanguinale*.

In Dbldy.-Hew., Gen., *Pap. Colon*, Fabr., is cited with a ? as a synonym of *Phylæus*, also in La Sagra, Hist. Cub. An. Art., on what grounds I do not know; Fabr.'s description does not

U. S. and Territories from the Atlantic to Arizona. California, Texas.

From Maryland south to the Gulf of Mexico and west to the Pacific; W. Indies; Cent. and S. Am., to S. Brazil.

agree with *Phylæus*, and he further says *Colon* is from India, though this locality with Fabr. might have meant indifferently either the West or East Indies. I append here the description of *Colon* from Syst. Ent., p. 531, (1775):

"*Alis divaricatis, fulvis: macula media margineque striato fuscis.*

Habitat in India. *Mus. Tottianum.*

Summa affinitas *P. Commatis*. Antennæ nigro fulvoque annulatae, clava uncinata, basi fulva, apice nigra. Alae omnes fulvae, anticis, macula magna media margineque postico fuscis. Posticae margine exteriori et postico fuscis; subtus alae fulvae, immaculate."

It is also cited in Sp. Ins., II, p. 131, (1781), Mant. Ins., II, p. 84, (1787), Ent. Syst., III, I, p. 327, (1793).

355. NAPA, W. H. EDWDS., (*Hesp. N.*), Proc. Ent. Soc., Phil., IV, p. 202, t. 1, (1865); Reak., l. c., VI, p. 150, (1866); Scud., Proc. Chicago Acad., p. 335, (1868); (*Pam. N.*) Kirby, Cat., p. 602, (1871); Scud., Syst. Rev. Am. Butt., p. 77, (1872).
Hesp. Dacotah, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 277, (1871). Colorado.
- †*356. DRACO, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 274, (1871). Colorado.
357. OTTOE, W. H. EDWDS., (*Hesp. O.*), Proc. Ent. Soc., Phil., VI, p. 207, (1867); (*Pam. O.*) Kirby, Cat., p. 602, (1871); Scud., Syst. Rev. Am. Butt., p. 78, (1872), Mem. Bost. Soc. Nat. Hist., II, p. 348, t. 10, f. 6, (1874). Kansas, Iowa, Nebraska, Ind. Ty.
- †*358. YUMA, W. H. EDWDS., (*Hesp. Y.*), Trans. Am. Ent. Soc., IV, p. 346, (1873). Arizona.
359. BRETTUS, BDL.-LEC., (*Hesp. B.*), Lep. Am. Sept., t. 75, ♀, (1833); (*Pam. B.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); La Sagra, Hist. Cuba, An. Art., p. 646, (1857); Morris, Syn., p. 118, (1862); Kirby, Cat., p. 600, (1871); (*Hedone B.*) Scud., Syst. Rev. Am. Butt., p. 79, (1872). Southern States from Georgia to Texas; Antilles.
- ♂ *Hesp. Wingina*, Scud., Proc. Ess. Ins., III, p. 173, (1862).
Bdl's figures 3, 4 are incorrectly cited as males; all three of his figures are females.
360. SASSACUS, HARRIS, (*Hesp. S.*), Ins. Inj. Veg., Flint's Ed., p. 315, (1862); Morris, Syn., p. 110, (1862); Scud., Proc. Ess. Ins., III, p. 173, (1862), Proc. Chicago Acad., p. 335, (1868); (*Pam. S.*) Kirby, Cat., p. 599, (1871); Scud., Syst. Rev. Am. Butt., p. 77, (1872), Mem. Bost. Soc. Nat. Hist., II, p. 346, t. 10, (1874). Atlantic States from Massachusetts to Georgia.
- Larva on *Panicum Sanguinale*.
361. MYSTIC, W. H. EDWDS., (*Hesp. M.*), Proc. Ent. Soc., Phil., II, p. 15, t. 1, (1863); Scud., Proc. Ess. Ins., III, p. 172, (1862); Saund., Can. Ent., I, p. 66, Lar., (1869); (*Pam. M.*) Kirby, Cat., p. 599, (1871); (*Limochores M.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872). Canada, New England and Middle States.

362. PECKIUS, KIRBY, (*Hesp. P.*), Faun. Bor. Am., IV, p. 300, t. 4, (1837); Emm., Nat. Hist. N. York Agr., V, p. 216, t. 32, f. 8, (1854); Harris, Ins. Inj. Veg., Flint's Ed., p. 315, f. 139, ♀, (1862); (*Pam. P.*) Kirby, Cat., p. 600, (1871); (*Polites P.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872).
Pam. Peckii, Morris, Syn., p. 120, (1862).
 ♂ *Hesp. Wamsutta*, Harris, Ins. Inj. Veg., Flint's Ed., p. 318, f. 141, (1862); Morris, Syn., p. 111, (1862); Scud., Proc. Ess. Ins., III, p. 174, (1862); Saund., Can. Ent., I, p. 66, Lar., (1869); Pack., Guide, p. 270, f. 198, (1869); (*Pam. W.*) Kirby, Cat., p. 600, (1871).
 Larva on grass.
363. NEMORUM, BDL., (*Hesp. N.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 314, (1852); Morris, Syn., p. 107, (1862); (*Pam. N.*) Kirby, Cat., p. 602, (1871); (*Ochlodes N.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872).
Hesp. Yreka, W. H. Edwards., Proc. Ent. Soc., Phil., VI, p. 207, (1866); (*Pam. Y.*) Kirby, Cat., p. 602, (1871).
- †*364. AGRICOLA, BDL., (*Hesp. A.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 314, (1852); Morris, Syn., p. 108, (1862); (*Pam. A.*) Kirby, Cat., p. 602, (1871); (*Ochlodes A.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872).
- †*365. CHUSCA, W. H. EDWARDS., (*Hesp. C.*), Trans. Am. Ent. Soc., IV, p. 346, (1873).
366. SYLVANUS, ESP., (*Pap. S.*). Schmett., I, 1, f. 36, (1777); Brkh., Schmett., I, p. 180 & 285, (1788), l. c., II, p. 236, (1789); Fabr., Mant. Ins., II, p. 84, (1787); Ent. Syst., III, 1, p. 326, (1793); Lewin, Pap. Gt. Brit., p. 96, t. 46, f. 1-3, (1795); Don., Nat. Hist. Brit. Ins., VIII, p. 8, t. 254, f. 2, ♂, (1799); Hüb., Eur. Schmett., I, f. 482-484, (1798-1803); Ross, Faun. Etr., II, p. 158, (1790), Ed. 2, II, p. 251, (1807); Ochs., Schmett. Eur., I, 2, 226, (1808); (*Hesp. S.*) Godt., Lep. Fr., I, t. 12, sec. f. 2 ♂, t. 12, tert. f. 3 ♂, (1821); (*Augiades S.*) Hüb., Verz. Bek. Schmett., p. 112, (1816); (*Hesp. S.*) Latr., Enc. Meth., IX, p. 770, (1823); (*Pam. S.*) Steph., Ill. Brit. Ent. Haust., p. 101, (1828), Cat. Brit. Ins. Haust., p. 28, (1829); (*Hesp. S.*) Meigen, Handbuch, p. 79, (1827), Eur. Schmett., II, p. 67, (1830); Dunc., Nat. Lib. Ent., IV, p. 117, t. 2, (1836); (*Pam. S.*) Wood, Ind. Ent., p. 9, t. 3, f. 80, (1845); Dbldy.-Hew., Gen. Diur. Lep., II, p. 522, (1850-1852); (*Hesp. S.*) Chenu, Pap., p. 226, f. 382, (1851-1853); Bll., Ann. Soc. Ent. Fr., 2me Ser. X, p. 313, (1852); Morris, Syn., p. 107, (1862); Stgr., Cat., p. 17, (1871); (*Pam. S.*) Kirby, Cat., p. 602, (1871); (*Augiades S.*) Scud., Syst. Rev. Am. Butt., p. 79, (1872).

Canada, New
Eng., Middle
and Western
States to
Iowa and
Kansas.

California.

California.

Arizona.

California;
Europe,
Northern
and Western
Asia.

Pap. Medicerta, Brk., Eur. Schmett., I, p. 180 & 285, (1788).

Pap. Minor ex aureo & fusco mixtus *stria* nigra; Streakt *cloudy* Hog. ♂, cloudy Hog. ♀; Petiv., Gaz., t. 4, f. 7, 8, (1702); Pap. Brit., p. 2, t. 6, f. 16, 17, (1717).

I have never seen an American example of this species, but have placed it in our fauna on the authority of Dr. Boisduval.

367. SYLVANOIDES, BDL., (*Hesp. S.*), Ann. Soc. Ent. Fr., California.
2me Ser. X, p. 313, (1852); Morris, Syn., p. 107, (1862); (*Pam. S.*) Kirby, Cat., p. 602, (1871).
Ochlodes Sonora, Seud., Syst. Rev. Am. Butt., p. 78, (1872).
- †*368. RURICOLA, BDL., (*Hesp. R.*), Ann. Soc. Ent. Fr., California.
Ser. X, p. 315, (1852); Morris, Syn., p. 108, (1862); (*Pam. R.*) Kirby, Cat., p. 602, (1871).
- †*369. PRATINCOLA, BDL., (*Hesp. P.*), Ann. Soc. Ent. Fr., California.
2me Ser. X, p. 315, (1852); Morris, Syn., p. 108, (1862); (*Pam. P.*) Kirby, Cat., p. 602, (1871); Seud., Syst. Rev. Am. Butt., p. 83, (1872).
370. PAWNEE, DODGE, (*Hesp. P.*), Can. Ent., VI, p. 44, Nebraska.
(1874).
371. COMMA, LINN., (*Pap. C.*), Syst. Nat., Ed. X, p. 484, Colorado,
(1758), Ed. XII, I, 2, p. 793, (1767); Faun. Succ., Utah, Mon-
p. 285, (1761); Scop. Ent. Carn., p. 181, n. 463, tana, Cali-
(1763); Wien., V, p. 160; Fabr., Syst. Ent., fornia,
p. 531, (1775); Sp. Ins., II, p. 131, (1781); Nevada,
Mant. Ins., II, p. 84, (1787); Ent. Syst., III, I, p. Oregon,
325, (1793); Esp., Schmett. Eur., I, 1, t. 23, (1777); Arizona;
Eng. Pap. Eur., I, p. 194, t. 45, f. 95 d, (1779); Brit. Col.,
Brk., Schmett., I, p. 179 & 284, (1788); Ross, Siberia, Eu-
Faun. Etr., II, p. 158, (1790), l. c., Ed. 2, II, p. rope.
251, (1807); Lewin, Pap. Gt. Brit., p. 94, t. 45, f. 1, 2, (1795); Dou., Nat. Hist. Ins., IX, p. 17, t. 295, ♀, (1800); Hüb., Eur. Schmett., I, f. 479-481, Lar. Lep. I, Pap. II, Gens. E, f. 3 a, (1798-1803); Fabr., Ill. Mag. Ins., VI, 287, (1807); Ochs., Schmett., I, 2, p. 224, (1808); Godt., Hist. Nat. Lep. Fr., I, t. 12 tert. f. 4, (1821); (*Augiades C.*) Hüb., Verz. Bek. Schmett., p. 112, (1816); (*Hesp. C.*) Latr., Enc. Meth., IX, p. 769, (1823); Meig., Handbuch, p. 78, t. 8, f. 8, (1827), Eur. Schmett., II, p. 66, (1830); (*Pam. C.*) Steph., Ill. Brit. Ent. Haust., I, p. 102, (1828), Cat. Brit. Ins. Haust., p. 28, (1829); Dun., Nat. Lib. Ent., IV, p. 119, t. 2, (1836); West.-Hum., Brit. Butt., p. 128, t. 41, (1841); Wood, Ind. Ent., p. 10, t. 3, (1845); (*Hesp. C.*) Bdl., Ann. Soc. Ent. Fr., 2me Ser. X, p. 313, (1852); Dbldy.-Hew., Gen. Diur. Lep., II, p. 522, (1850-1852); Chenu, Pap., p. 226, f. 383, (1851-1853); Morris, Syn., p. 109, (1862); Stgr., Cat., p. 35, (1871); (*Pam. C.*) Kirby, Cat.,

- p. 602, (1871); Scud., Mem. Bost. Soc. Nat. Hist., II, p. 350, t. 10, f. 13, 14, (1874).
- Pap. Virgula*, Retz., Gen. Spec. Ins., p. 31, n. 7, (1783).
- Pam. Nevado*, Scud., Mem. Bost. Soc. Nat. Hist., II, p. 347, t. 10, f. 1-4, (1874).
- Pam. Colorado*, Scud., l. c., p. 349, t. 10, f. 16-18.
- Pam. Manitoba*, Scud., l. c., p. 351, t. 10, f. 8-11.
- , *Raj.*, Hist. Ins., 125, (1710).
- , *Merian*, Eur. Ins., 15, t. 48, (1717).
- , *Schaeff.*, Icon., III, t. 260, f. I, II, 274, f. I, II, (1804), *Hesp. Urb. Comma*, Nom. Panz., p. 208, & *Hesp. rur. C.*, p. 215, (1804).
- Larva on *Coronilla Varia* in Europe.
- var. a. CATENA, STGR., (*Hesp. C.*), Stett. Ent. Zeit., p. 357, (1861), Cat. Lep. Eur., p. 35, (1871); (*Pam. C.*) Kirby, Cat., p. 602, (1871); Scud., Mem. Bost. Soc. Nat. Hist., II, t. 10, f. 12 & 15, (1874). N. Labrador, Lapland.
- Under surface secondaries very dark greenish, spots conspicuous and of silvery whiteness.
- var. b. JUBA, SCUD., Syst. Rev. Am. Butt., p. 77, (1872), Mem. Bost. Soc. Nat. Hist., II, p. 349, t. 10, f. 19, 20, (1874). California, Arizona, Utah.
- Somewhat larger; less obscured with fuscous on upper surface, especially in ♀.
- ? var. c. COLUMBIA, SCUD., Syst. Rev. Am. Butt., p. 77, (1872). California.
- Pam. Sylvanoides*, Scud., (*nec. Bdl.*), Mem. Bost. Soc. Nat. Hist., p. 351, t. 10, f. 21, 22, (1874).
- Smaller; ♂ has on upper surface a brown furry patch joining the inner side of the discal dash. Silver marks of under side of secondaries in both sexes small and placed somewhat differently from any of the above forms; they consist of a chevron-shaped discal spot, an abbreviated mesial bar, formed of confluent spots, with a small isolated spot near its apical end, but not in a line with it, being somewhat interior thereto.
- This may perhaps be a distinct species.
- ‡372. RIDINGSH, REAK., (*Hesp. R.*), Proc. Ent. Soc., Phil., VI, p. 151, ♀, (1866); Kirby, Cat., p. 615, (1871). Colorado.
- Only known by the unique ♀ type formerly in Mus. Reak. Though of greater size, it approaches *Comma* somewhat in the markings, especially of under surface; and it may possibly prove to be a melanotic aberration of that species.
- It bears also, on both surfaces, more particularly the lower, a striking resemblance to *Metca* ♂.
373. SABULETI, BDL., (*Hesp. S.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 316, (1852); Morris, Syn., p. 109, (1862); (*Pam. S.*) Kirby, Cat., p. 602, (1871); (*Polites S.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872). California.

- †*374. UNCAS, W. H. EDWDS., (*Hesp. U.*), Proc. Ent. Soc., Phil., II, p. 19, t. 5, f. 3, ♂, (1863); (*Pam. U.*) Kirby, Cat., p. 600, (1871); (*Athomaster U.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872). British Am. Mid. & Wcs. States to Colorado. Texas.
- †*375. LICINUS, W. H. EDWDS., Trans. Am. Ent. Soc., III, p. 275, (1871). Massachusetts, Connecticut, N. York. Texas.
376. METEA, SCUD., (*Hesp. M.*), Proc. Ess. Ins., III, p. 177, (1862); (*Pam. M.*) Kirby, Cat., p. 607, (1871); (*Ocytes M.*) Scud., Syst. Rev. Am. Butt., p. 76, (1872).
377. ATTALUS, W. H. EDWDS., (*Hesp. A.*), Trans. Am. Ent. Soc., III, p. 276, (1871). Florida.
- var. a. SEMINOLE, SCUD., (*Ocytes S.*), Syst. Rev. Am. Butt., p. 76, (1872).
Darker on under surface. Pale spots of upper surface all smaller.
- †*378. MESKEI, W. H. EDWDS., Can. Ent., IX, p. 58, (1877). Texas.
379. LEONARDUS, HARRIS, (*Hesp. L.*), Ins. Inj. Veg., Flint's Ed., p. 314, f. 138, ♂, (1862); Morris, Syn., p. 110, (1862); Scud., Proc. Ess. Ins., III, p. 172, (1862), Proc. Chicago Acad., p. 335, (1868); (*Pam. L.*) Kirby, Cat., p. 599, (1871); (*Athomaster L.*) Scud., Syst. Rev. Am. Butt., p. 78, (1872). New Eng. & Mid. States; W. Va., Ohio, Ind., Ill., Ark., Kan. Colorado.
- †*380. SNOWI, W. H. EDWDS., Can. Ent., IX, p. 29, (1877). New York, Ohio, Ind., Ill., Mich., Iowa, Minn., Neb.
381. PONTIAC, W. H. EDWDS., (*Hesp. P.*), Proc. Ent. Soc., Phil., II, p. 17, t. 11, f. 5, ♂, (1863); (*Pam. P.*) Kirby, Cat., p. 600, (1871).
Hesp. Conspicua, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 17, t. 5, f. 5, ♀, (1863); Scud., Proc. Chicago Acad. Nat. Sc., p. 336, ♂, (1868); Parker, Can. Ent., III, p. 51, ♂, (1871); (*Pam. C.*) Kirby, Cat., p. 606, (1871); (*Atrytone C.*) Scud., Syst. Rev. Am. Butt., p. 77, (1872).
Hedone Orona, Scud., Syst. Rev. Am. Butt., p. 79, (1872).
382. CERNES, BDL.-LEC., (*Hesp. C.*), Lep. Am. Sept., t. 76, f. 1, 2, (1833); (*Pam. C.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Kirby, Cat., p. 599, (1871). Canada; United States and Territories to Colorado and Texas.
- Hesp. Arogos*, Bdl.-Lee., Lep. Am. Sept., t. 76, f. 3, 4, 5, (1833); (*Pam. A.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Morris, Syn., p. 118, (1862); Kirby, Cat., p. 600, (1871).
- Hesp. Ahaton*, Harris, Ins. Inj. Veg., Flint's Ed., p. 317, f. 140, ♀, (1862); Morris, Syn., p. 111, (1862); Scud., Proc. Ess. Ins., III, p. 176, (1862), Proc. Chicago Acad., p. 335, (1868); (*Pam. A.*) Kirby, Cat., p. 600, (1871).
- Pap. Taumus*, Fabr., Mant. Ins., II, p. 84, (1787); Ent. Syst., III, 1, p. 327, (1793); (*Hesp. Th.*) Latr., Enc. Meth., IX, p. 766, (1823); (*Pam. Th.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 522, (1850-

1852); Morris, Syn., p. 117, (1862); Kirby, Cat., p. 599, (1871); (*Limochores T.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).

Pap. Origenes?, Fabr., Ent. Syst., III, 1, p. 328, (1793); (*Pap. O.*) Don., Ins. Ind., t. 48, f. 2, (1800); (*Pam. O.*) Morris, Syn., p. 117, (1862); Kirby, Cat., p. 599, (1871).

I am doubtful whether *Origenes* be the same as our species. Neither Fabricius' description nor Donovan's figure agree with it in several respects, but we must bear in mind that Donovan was somewhat careless in his delineations, often depending on rough sketches or even his memory in finishing his figures.

Fabricius' description is:

"*Alis divaricatus concoloribus fuscis: striga punctorum alborum, anticiis basi testacis.*"

Pap. Origines. Jon. fig. pict. 6, tab. 74. f. 2.

Habitat in Indiis, Dom. Jones.

Statura omnino praeecedentium. Alae omnes fuscae striga punctorum alborum. Anticae basi oblique testaceae."

383. MANATAAQUA, SCUD., (*Hesp. M.*), Proc. Ess. Ins., III, p. 175, (1862); (*Pam. M.*) Kirby, Cat., p. 599, (1871); (*Limochores M.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).

Hesp. Cernes, Harris, Ins. Inj. Veg., Flint's Ed., p. 316, (1862).

384. OTHO, ABB.-SM., (*Pap. O.*), Ins. Ga., I, p. 31, t. 16, (1797); (*Pam. O.*) Kirby, Cat., p. 603, (1871).
Larva on *Panicum Sanguinale*.

var. a. *HESP. EGEREMET*, SCUD., Proc. Ess. Ins., III, p. 174, (1862); (*Pam. E.*) Kirby, Cat., p. 603, (1871).

Hesp. Otho, Bdl.-Lec., (nec Abb.-Sm.), Lep. Am. Sept., t. 77, (1833).

Hedone Aetna, Scud., Syst. Rev. Am. Butt., p. 79, (1872).

In both sexes the entire ground colour above and below is dark brown.

385. BIMACULA, GR.-ROB., (*Hesp. B.*), Ann. N. Y. Lyc. Nat. Hist., VIII, p. 433, (1867); (*Pam. B.*) Kirby, Cat., p. 603, (1871); (*Limochores B.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).

Hesp. Aconootus, Scud., Proc. Bost. Soc. Nat. Hist., XI, p. 381, (1868).

Hesp. Illinois, Dodge, Can. Ent., IV, p. 217, (1872).

386. ARPA, BDL.-LEC., (*Hesp. A.*), Lep. Am. Sept., t. 68, (1833); (*Pam. A.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Morris, Syn., p. 117, (1862); Kirby, Cat., p. 597, (1871); (*Limochores A.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).

387. BULENTA, BDL.-LEC., (*Hesp. B.*), Lep. Am. Sept., t. 67, (1833); (*Pam. B.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Morris, Syn., p. 117, (1862); Kirby, Cat., p. 597, (1871).

Hesp. Pilatka, W. H. Edwds., Trans. Am. Ent. Soc., I, p. 287, (1867).

Canada; U. S. and Ter. from Atlantic to Pacific.

Gulf States from Ga. to Texas.

Canada; United States from the Atlantic to the Mississippi Valley.

Mass., N. York, Ohio, Ind., Ill., Iowa, Ark., Neb.

Gulf States.

Gulf States.

- Pam. Pilalka*, Kirby, Cat., p. 602, (1871).
Limochores Palatka, Scud., Syst. Rev. Am. Butt., p. 80, (1872).
388. METACOMET, HARRIS, (*Hesp. M.*), Ins. Inj. Veg., Flint's Ed., p. 317, (1862); Morris, Syn., p. 111, (1862); Scud., Proc. Chicago Acad., p. 335, (1868); (*Pam. M.*) Kirby, Cat., p. 600, (1871); (*Euphyes M.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872); (*Pam. M.*) Putnam, Proc. Dav. Acad., 1, p. 186, (1876).
Pam. Rurea, W. H. Edwds., Proc. Acad. Nat. Sc., Phil., p. 58, (1862); (*Hesp. R.*) Trans. Am. Ent. Soc., II, p. 288, (1867).
- †389. KIOWAH, REAK., (*Hesp. K.*), Proc. Ent. Soc., Phil., VI, p. 150, (1866); (*Pam. K.*) Kirby, Cat., p. 600, (1871).
 Only known through the unique ♂ type which passed into my keeping. It is the size and colour of *Metacomet*, but the inferiors are smaller and both surfaces of all wings are uniform blackish brown, totally devoid of every vestige of marking save the black discal line on upper side of primaries.
- †390. OSCEOLA, LINT., MSS. W. H. Edwds., Trans. Am. Ent. Soc., VI, (1877).
391. ACUTUS, ABB.-SM., (*Pap. A.*), Ins. Ga., I, t. 23, (1797); (*Pam. A.*) Dblly.-Hew., Gen. Dir. Lep., II, p. 523, (1850-1852); Kirby, Cat., p. 597, (1871); (*Lerema A.*) Scud., Syst. Rev. Am. Butt., p. 82, (1872).
Hesp. Monoco, Scud., Proc. Ess. Ins., III, p. 178, (1862); (*Pam. M.*) Kirby, Cat., p. 600, (1871).
Hesp. Nortonii, W. H. Edwds., Trans. Am. Ent. Soc., I, p. 287, (1867).
Hesp. Punctella, G.-R., Trans. Am. Ent. Soc., I, p. 1, (1867); (*Pam. P.*) Kirby, Cat., p. 600, (1871).
 Larva on Indian corn, *Wistaria Frutescens*.
- †392. DEVA, W. H. EDWDS., (*Hesp. D.*), Trans. Am. Ent. Soc., V, p. 292, (1876).
- †393. VESTRIS, BDL., (*Hesp. ? V.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 317, (1852); Morris, Syn., p. 109, (1862); (*Pam. V.*) Kirby, Cat., p. 597, (1871); (*Euphyes V.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).
- †394. HORUS, W. H. EDWDS., (*Hesp. H.*), Trans. Am. Ent. Soc., III, p. 277, (1871).
395. VERNA, W. H. EDWDS., Proc. Acad. Nat. Sc., Phil., p. 57, (1862); Kirby, Cat., p. 599, (1871); (*Euphyes V.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872).
396. HIANNA, SCUD., (*Hesp. H.*), Proc. Bost. Soc. Nat. Hist., XI, p. 382, (1868); (*Pam. H.*) Kirby, Cat., p. 600, (1871); (*Lerema H.*) Scud., Syst. Rev. Am. Butt., p. 82, (1872).
397. VITELLIUS, FABR., (*Pap. V.*), Ent. Syst., III, 1, p. 327, (1793); Hew. in Trans. Ent. Soc. Lond., I, p. 341, (1812); (*Thym. V.*) Hüb., Samml. Ex. Schmett.,
- Canada;
 Northern
 United
 States from
 Maine to
 Kansas.
- "Rocky
 Mts."
- Mendocino,
 Califa.
- Gulf States.
- Arizona.
- California.
- Texas.
- Pa. south to the
 Carolinas and
 west to Kansas.
- New Eng.
 States, N. York,
 Mich., Iowa,
 Wis., Neb.
- Pa. south to
 Gulf of Mex.
 and west to
 Rocky Mts.

- II, Lep. I, Pap. II, Gent. VI, Astyci G., vig. 6, (1816-1844); Verz. Bek. Schmett., p. 113, (1816).
Hesp. Delaware, W. H. Edwards., Proc. Ent. Soc., Phil., II, p. 19, t. V, f. 2, ♂, (1863); Scud., Proc. Chicago Acad., p. 336, (1868); (*Thym. D.*) Kirby, Cat., p. 610, (1871).
Hesp. Logan, W. H. Edwards., Proc. Ent. Soc., Phil., II, p. 18, t. 1, f. 5, ♀, (1863); Trans. Am. Ent. Soc., II, p. 288, (1867); Scud., Proc. Chicago Acad., p. 336, (1868); (*Pam. L.*) Kirby, Cat., p. 607, (1871); (*Atrytone L.*) Scud., Syst. Rev. Am. Butt., p. 77, (1872).
398. ZABULON, BDL.-LEC., (*Hesp. Z.*), Lep. Am. Sept., t. 76, f. 6, 7, (1833); (*Pam. Z.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Morris, Syn., p. 116, (1862); Kirby, Cat., p. 603, (1871); (*Atrytone Z.*) Scud., Syst. Rev. Am. Butt., p. 77, (1872).
 Pa. southward to Gulf of Mexico, west to Texas.
 Has been frequently confounded with *Hobomok*, Harr., but is entirely distinct.
399. HOBOMOK, HARRIS, (*Hesp. H.*), Ins. Inj. Veg., Flint's Ed., p. 313, f. 137, (1862); Morris, Syn., p. 110, (1862); Scud., Proc. Ess. Ins., III, p. 171, (1862); Proc. Chicago Acad., p. 335, (1868); Samud., Can. Ent., I, p. 66, Lar., (1869); (*Pam. H.*) Kirby, Cat., p. 603, (1871).
 Canada; United States from Atlantic to the Rocky Mts.
Atrytone Zabulon, Scud., (*nec Bdl.-Lec.*), Syst. Rev. Am. Butt., p. 77, (1872).
 Larva on grass.
- var. a. QUADAQUINA, SCUD., (*Hesp. Q.*), Proc. Bost. Soc. Nat. Hist., XI, p. 381, (1868); (*Pam. Q.*) Kirby, Cat., p. 603, (1871).
 This and the following are melanotic forms of *Hobomok*, having both surfaces obscured with dark brown.
- ab. b. ♀ POCAHONTAS, SCUD., (*Hesp. P.*), Proc. Ess. Ins., III, p. 171, (1862); Proc. Bost. Soc. Nat. Hist., XI, p. 381, (1868); (*Pam. P.*) Kirby, Cat., p. 603, (1871); (*Hesp. P.*) Streck., Lep., Rhop.-Het., p. 7, (1872).
400. MASSASOIT, SCUD., (*Hesp. M.*), Proc. Ess. Ins., III, p. 171, (1862); (*Pam. M.*) Kirby, Cat., p. 607, (1871); (*Poanes M.*) Scud., Syst. Rev. Am. Butt., p. 76, (1872).
 New. Eng. and Middle States.
401. VIATOR, W. H. EDWDS., (*Hesp. V.*), Proc. Ent. Soc., Phil., IV, p. 202, t. 1, f. 5, (1865); (*Pam. V.*) Kirby, Cat., p. 608, (1871); (*Phycanassa V.*) Scud., Syst. Rev. Am. Butt., p. 77, (1872).
 Southern States from the Carolinas to Texas.
- ‡ 402. MELANE, W. H. EDWDS., (*Hesp. M.*), Trans. Am. Ent. Soc., II, p. 312, (1869); (*Pam. M.*) Kirby, Cat., p. 607, (1871).
 California.
 Mr. W. H. Edwards, in Trans. Am. Ent. Soc., VI, Feb., 1877, cites this as a "dim. var. ♀" of *Napa*. This is curious, as

he described *Melane* himself from "1 ♂, 1 ♀, collection Tryon Reakirt, Esq." There are in this coll., including Edwds.' types, 3 ♂, 1 ♀, all of which are now in my possession. They are indubitably ♂ and ♀; in that there is no mistake, and Edwds. properly described both sexes in Trans. II, 312; and what makes it still more strange that he should later place it as a var. of *Napa*, is that the ♂ is entirely destitute of the raised discal bar or stigma so conspicuous in *Napa* ♂ and allies.

Melane is a dark brown species. *Napa* a yellow one.

403. IOWA, SCUD., (*Hesp. I.*), Trans. Chicago Acad., p. 336, (1868); (*Atrytone I.*) Syst. Rev. Am. Butt., p. 77, (1872); (*Thym. I.*) Kirby, Cat., p. 610, (1871).
Pap. Vitellius, Abb.-Sm., (nec Fabr.), Ins. Ga., I, p. 34, t. 17, (1797); (*Pam. V.*) Dblldy.-Hew., Gen. Diur. Lep., II, p. 52, (1850-1852); Morris, Syn., p. 120, (1862); Kirby, Cat., p. 603, (1871).
 Larva on *Panicum Crus-galli*. Gulf States; Iowa, Nebraska.
404. PANOQUIN, SCUD., (*Hesp. P.*), Proc. Ess. Ins., III, p. 178, (1862); (*Pam. P.*) Kirby, Cat., p. 608, (1871); (*Prenes P.*) Scud., Syst. Rev. Am. Butt., p. 81, (1872).
Hesp. Ophis, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 216, (1871). Gulf States.
405. OCOLA, W. H. EDWDS., (*Hesp. O.*), Proc. Ent. Soc., Phil., II, p. 20, t. 11, f. 4, (1863); (*Pam. O.*) Kirby, Cat., p. 607, (1871); (*Prenes O.*) Scud., Syst. Rev. Am. Butt., p. 81, (1872). Gulf States.
406. ETHLIUS, CRAM., (*Pap. E.*), Pap. Ex., IV, t. 392, A, B, (1782); (*Calpododes E.*) Hüb., Verz. Bek. Schmett., p. 107, (1816); (*Pam. E.*) Kirby, Cat., p. 596, (1871); (*Calpododes E.*) Scud., Syst. Rev. Am. Butt., p. 82, (1872). Gulf States; S. Am. to Buenos Ayres.
Hesp. Chemnis, Fabr., Ent. Syst., III, 1, p. 331, (1793); (*Hesp. C. et Ethl.*) Latr., Enc. Meth., IX, p. 746, (1823); (*Pap. C.*) Don., Ins. Ind., t. 49, f. 1, (1800).
Eudamus? Olynthus, Bdl.-Lee., Lep. Am. Sept., t. 75, f. 1, 2, (1833); (*Goniloba O.*) Morris, Syn., p. 113, (1862); (*Pam. O.*) Kirby, Cat., p. 596, (1871).
 A single example of this southern species was taken in West Farms, N. Y., by James Angus some years since.
407. MACULATA, W. H. EDWDS., (*Hesp. M.*), Proc. Ent. Soc., Phil., IV, p. 202, t. 1, f. 6, (1865); (*Pam. M.*) Kirby, Cat., p. 599, (1871); (*Oligoria M.*) Scud., Syst. Rev. Am. Butt., p. 81, (1872). Southern States, Ga. to Texas.
408. OSKYA, W. H. EDWDS., (*Hesp. O.*), Trans. Am. Ent. Soc., I, p. 288, (1867); (*Pam. O.*) Kirby, Cat., p. 607, (1871); (*Euphyes O.*) Scud., Syst. Rev. Am. Butt., p. 79, (1872). Southern States; Georgia to Texas.
Hesp. Eufala, W. H. Edwds., Trans. Am. Ent. Soc., II, p. 311, (1869); (*Pam. E.*) Kirby, Cat., p. 606, (1871); (*Lerodca E.*) Scud., Syst. Rev. Am. Butt., p. 79, (1872).

Eufala was sent to me from Apalachicola, Fla., by Dr. A. W. Chapman, who also furnished Mr. W. H. Edwds. with the example from which the latter made his description. Later I obtained examples of *Oskya* taken in Texas and identified by Mr. Edwds. himself, and I cannot, with my best will, find any characteristics by which to separate them into two species.

409. COMUS, W. H. EDWDS., (*Hesp. C.*), Trans. Am. Ent. Soc., V, p. 206, (1876). Texas.
410. VIALIS, W. H. EDWDS., (*Hesp. V.*), Proc. Acad. Nat. Sc., Phil., p. 58, (1862); (*Pam. V.*) Kirby, Cat., p. 608, (1871); (*Amblyscirtes V.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872). U. S. from Atlantic to Mississippi Valley.
411. SAMOSET, SCUD., (*Hesp. S.*), Proc. Ess. Ins., III, p. 176, (1862); (*Amblyscirtes S.*) Syst. Rev. Am. Butt., p. 75, (1872). New Eng. and Middle States, Mich. *Hesp. Hegon*, Scud., Proc. Ess. Ins., III, p. 176, (1862); Kirby, Cat., p. 613, (1871). Iowa, Wisconsin. *Hesp. Nemoris*, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 507, (1863); l. c., IV, t. I, (1865). *Hesp. Alternata*, G.-R., Trans. Am. Ent. Soc., I, p. 3, (1867); (*Pam. A.*) Kirby, Cat., p. 606, (1871). Larva on *Andropogon Arenaceum*.
412. FUSCA, G.-R., (*Hesp. F.*), Trans. Am. Ent. Soc., I, p. 2, (1867); (*Pam. F.*) Kirby, Cat., p. 607, (1871); (*Lerodea F.*) Scud., Syst. Rev. Am. Butt., p. 80, (1872). Southern States, Georgia to Texas.
413. TEXTOR, HUB., (*Pyrgus T.*), Zentr. Ex. Schmiett., f. 515, 516, (1825); Dbldy.-Hew., Gen. Diur. Lep., II, p. 518, (1850-1852); (*Pam. T.*) Kirby, Cat., p. 606, (1871); (*Stomyles T.*) Scud., Syst. Rev. Am. Butt., p. 76, (1872). Southern States, Georgia to Texas. *Hesp. Oneko*, Scud., Proc. Ess. Ins., III, p. 176, (1862); Kirby, Cat., p. 613, (1871). *Hesp. Wakulla*, W. H. Edwds., Trans. Am. Ent. Soc., II, p. 311, (1869).
- †*414. NEREUS, W. H. EDWDS., Trans. Am. Ent. Soc., V, p. 207, (1876). Arizona.
415. EOS, W. H. EDWDS., (*Hesp. E.*), Trans. Am. Ent. Soc., III, p. 286, (1871). Sou. States, Ga. to Tex.
416. SIMILIS, STRECK., Lep., Rhop.-Het., (1877). San Antonio, Texas.

The earlier stages of but few of the species of *Pamphila* are known, but it is presumed that the larva of most of them feed on grass.

GENUS 6. ANCYLOXYPHA, FELD.

417. PROCRIIS, W. H. EDWDS., (*Heteropterus P.*), Trans. Am. Ent. Soc., III, p. 215, (1871). Texas.
- var. a. WACO, W. H. EDWDS., (*Hesp. W.*), Trans. Am. Ent. Soc., II, p. 122, (1868); (*Pam. W.*) Kirby, Cat., p. 608, (1871); (*Thym. W.*) Scud., Syst. Rev. Am. Butt., p. 74, (1872).

Hesp. Minima, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 196, (1870); (*Thym. M.*) Kirby, Cat., p. 656, (1871).

Destitute of the white streak which runs from base to middle of outer edge on under side of secondaries in *Procris*.

- †*418. ARENE, W. H. EDWDS., (*Heteropterus A.*), Trans. Am. Ent. Soc., III, p. 214, (1871); (*Thym. A.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872). Arizona.
419. NUMITOR, FABR., (*Hesp. N.*), Ent. Syst., III, 1, p. 324, (1793); (*Pap. N.*) Don., Ins. Ind., t. 44, (1800); (*Hesp. N.*) Latr., Enc. Meth., IX, p. 776, (1823); (*Pam. N.*) Dbldy.-Hew., Gen. Diur. Lep., II, p. 523, (1850-1852); Morris, Syn., p. 120, (1862); (*Thymelicus N.*) Kirby, Cat., p. 609, (1871); (*Anticyl. N.*) Scud., Syst. Rev. Am. Butt., p. 74, (1872). Canada; United States from the Atlantic to the Rocky Mts.
- Thymelicus Puer*, Hüb., Verz. Bek. Schmett., p. 113, (1816); Zutr. Ex. Schmett., f. 275, 276, (1823).
- Heteropterus Marginatus*, Harris, Ins. Inj. Veg., Flint's Ed., p. 308, f. 131, (1862); (*Thym. M.*) Kirby, Cat., p. 610, (1871).
- ‡420. GARITA, REAK., (*Hesp. G.*), Proc. Ent. Soc., Phil., VI, p. 150, (1866); (*Pam. G.*) Kirby, Cat., p. 607, (1871); (*Hesp. G.*) Streek., Lep., Rhop.-Het., p. 93, (1874). Colorado, Nebraska, Illinois.
- Hesp. Poweshiek*, Parker, Am. Ent., II, p. 271, (1870); (*Oarisma P.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872).
- ? var. a. HYLAX, W. H. EDWDS., (*Thymeticus H.*) Trans. Am. Ent. Soc., III, p. 274, (1871). Colorado.

GENUS 7. CARTEROCEPHALUS, LED.

421. MANDAN, W. H. EDWDS., (*Hesp. M.*), Proc. Ent. Soc., Phil., II, p. 20, t. 5, f. 1, (1863); (*Heteropterus M.*) Kirby, Cat., p. 624, (1871); (*Cyclopides M.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872). White Mts. of New Hampshire; Labrador, British Columbia, Alaska.
- Hesperia Mesapano*, Scud., Proc. Bost. Soc. Nat. Hist., XI, p. 383, (1868); (*Heteropterus M.*) Kirby, Cat., p. 624, (1871).
- Cyclopides Skada*, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 196, (1870); (*Heteropterus S.*) Kirby, Cat., p. 656, (1871); (*Cyclopides S.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872).
- †*422. OMAHA, W. H. EDWDS., (*Hesp. O.*), Proc. Ent. Soc., Phil., II, p. 21, (1863); Reak., l. c., VI, p. 150, (1866); (*Pam. O.*) Kirby, Cat., p. 607, (1871); (*Potanthus O.*) Scud., Syst. Rev. Am. Butt., p. 75, (1872). West Va., Colorado, California.
- Hesp. Mingo*, W. H. Edwds., Proc. Ent. Soc., Phil., VI, p. 207, (1866); (*Pam. M.*) Kirby, Cat., p. 607, (1871).
- Potanthus Californica*, Scud., Syst. Rev. Am. Butt., p. 75, (1872).

GENUS 8. PYRGUS, HUB.

423. SYRICHTUS, FABR., (*Pap. S.*), Syst. Ent., p. 534, (1775); United States and Territories from Atlantic to Pacific; Cent. and S. Am. to Buenos Ayres.
Sp. Ins., II, p. 137, (1781); *Mant. Ins.*, II, p. 90, (1787); *Ent. Syst.*, III, 1, p. 349, (1793); (*Pyrg. S.*) Hüb., Verz. Bek. Schmett., p. 109, (1816); (*Hesp. S.*) Latr., Enc. Meth., IX, p. 785, (1823); (*Pyrg. S.*) Dbldy.—Hew., Gen. Diur. Lep., II, p. 518, (1850–1852); (*Hesp. S.*) Kirby, Cat., p. 616, (1871); Seud., Syst. Rev. Am. Butt., p. 73, (1872).
Pap. Orcus, Cram., Pap. Ex., IV, t. 334, I, K, L, (1782).
Pyrg. Oileus, West.—Humph., (*nec Linn.*), Brit. Butt., t. 38, f. 14, 15, (1841); Reak., Proc. Ent. Soc., Phil., VI, p. 150, (1866).
Syrichtus Oilus, Morris, Syn., p. 121, (1862).
Pap. Tartarus, Hüb., Eur. Schmett., f. 716, 717, (1803–1818).
Hesperia Tessellata, Seud., Syst. Rev. Am. Butt., p. 73, (1872); Can. Ent., IV, p. 77, (1872); (*Pyrg. T.*) Putnam, Proc. Dav. Acad., I, p. 197, (1876).
Syrichtus Communis, Grote, Can. Ent., IV, p. 69, (1872); (*Hesp. C.*) l. c., p. 220, (1872).
 Larva on wild tea (*Seda*).
424. CENTAUREE, RAMBR., (*Hesp. C.*), Faun. Ent. And., t. 8, f. 10, (1839); Bdl., Gen. et Ind., p. 36, (1840); H-S., Schmett. Eur., I, Hesp., f. 1–3, (1845); Wallgr., Skand. Dagf., p. 265, (1853); (*Secl. C.*) Rambr., Cat. Lep. And., I, p. 78, (1858); (*Syr. C.*) Mosch., Wien. Ent. Mon., VIII, p. 193, (1864); Stgr., Cat., p. 34, (1871); (*Hesp. C.*) Kirby, Cat., p. 614, (1871); Seud., Syst. Rev. Am. Butt., p. 74, (1872).
Syr. Ruralis, Bdl., Ann. Soc. Ent. Fr., 2me Ser. X, p. 311, (1852); Morris, Syn., p. 121, (1862); (*Hesp. R.*) Kirby, Cat., p. 616, (1871).
Hesp. Wyandot, W. H. Edwds., Proc. Ent. Soc., Phil., II, p. 21, t. 5, f. 4, (1863); Kirby, Cat., p. 614, (1871).
425. RICARA, W. H. EDWDS., (*Hesp. R.*), Proc. Ent. Soc., Phil., IV, p. 203, t. 1, (1865); (*Pyrg. R.*) Reak., l. c., VI, p. 150, (1866); (*Hesp. R.*) Kirby, Cat., p. 614, (1871).
Hesp. Ruralis, Seud., (*nec Bdl.*), Syst. Rev. Am. Butt., p. 74, (1872).
Syr. Petreius, W. H. Edwds., Trans. Am. Ent. Soc., III, p. 195, (1870).
- †*426. CLESPITALIS, BDL., (*Syr. C.*), Ann. Soc. Ent. Fr., 2me Ser. X, p. 312, (1852); Morris, Syn., p. 121, (1862); (*Hesp. C.*) Kirby, Cat., p. 616, (1871); Seud., Syst. Rev. Am. Butt., p. 74, (1872). California.

- †*427. *SCRIPTURA*, BDL., (*Syr. S.*) Ann. Soc. Ent. Fr. 2me California. Ser. X, p. 313, (1852); Morris, Syn., p. 121, (1862); (*Hesp. S.*) Kirby, Cat., p. 616, (1871); Scud., Syst. Rev. Am. Butt., p. 73, (1872).
428. *ERICETORUM*, BDL., (*Syr. E.*) Ann. Soc. Ent. Fr. 2me Oregon, Ser. X, p. 313, (1852); Morris, Syn., p. 121, California. (1862); (*Leucochitones E.*) Kirby, Cat., p. 617, (1871); (*Leucoscirtes E.*) Scud., Syst. Rev. Am. Butt., p. 72, (1872).
Syr. Alba, W. H. Edwards., Proc. Ent. Soc. Phil. VI, p. 206, (1866); (*Hesp. A.*) Kirby, Cat., p. 614, (1871).
- †*429. *OCEANUS*, W. H. EDWARDS., (*Syr. O.*), Trans. Am. Ent. Arizona. Soc. III, p. 213, (1871); (*Leucoscirtes O.*) Scud., Syst. Rev. Am. Butt., p. 72, (1872).

GENUS 9. *SPILOTHYRUS*, DUP.

430. *NOTABILIS*, STRECK., Lep. Rhop.-Het., p. 131, (1877). San Antonio, Tex.

GENUS 10. *NISONIADES*, HUB.

(*Thanaos*, Bdl.)

431. *JUVENALIS*, FABR., (*Hesp. J.*) Ent. Syst. III, 1, p. 339, (1793); (*Pap. J.*) Abb.-Sm., Ins. Ga. I, t. 21, (1797); (*Hesp. J.*) Latr., Enc. Meth. IX, p. 789, (1823); (*Than. J.*) Bdl.-Lee., Lep. Am. Sept., t. 65, (1833); (*Nis. J.*) Dbldy.-Hew., Gen. Diur. Lep. II, p. 519, (1850-1852); (*Than. J.*) Harris, Ins. Inj. Veg., Flint's Ed., p. 309, (1862); (*Nis. J.*) Morris, Syn., p. 114, (1862); Scud.-Burgess, Proc. Bost. Soc. Nat. Hist. XIII, p. 297, (1870); Kirby, Cat., p. 629, (1871); (*Erynnis J.*) Scud., Syst. Rev. Am. Butt., p. 72, (1872).
- Nis. Juvenis*, Hüb., Verz. Bek. Schmett., p. 108, (1816).
- Nis. Costalis*, Dbldy.-Hew., Gen. Diur. Lep. II, p. 519, t. 79, f. 3, (1852).
- Nis. Terventius*, Scud.-Burg., Proc. Bost. Soc. Nat. Hist. XIII, p. 292, (1870); Kirby, Cat., p. 629, (1871); (*Erynnis T.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).
- Nis. Ovidius*, Scud.-Burg., l. c., p. 295, (1870); Kirby, Cat., p. 629, (1871); (*Erynnis O.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).
- Nis. Ennius*, Scud.-Burg., l. c., p. 296, (1870); Kirby, Cat., p. 629, (1871); (*Erynnis E.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872); (*Nis. E.*) Putnam, Proc. Dav. Acad. I, p. 186, (1876).
- Nis. Horatius*, Scud.-Burg., l. c., p. 301, (1870); Kirby, Cat., p. 630, (1871); (*Erynnis H.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872).

Nis. Virgilius, *Scud.-Burg.*, l. c., p. 302, (1870); Kirby, *Cat.*, p. 630, (1871); (*Erynnis V.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

Larva on various oaks, Wild Indigo, *Glycine*, *Lathyrus*.

†*432. PLAUTUS, *SCUD.-BURG.*, *Proc. Bost. Soc. Nat. Hist.* Florida.

XIII, p. 304, (1870); Kirby, *Cat.*, p. 630, (1871); (*Erynnis P.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

433. PROPERTIUS, *SCUD.-BURG.*, *Proc. Bost. Soc. Nat. Hist.* California.
XIII, p. 299, (1870); Kirby, *Cat.*, p. 630, (1871); (*Erynnis P.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

Nis. Tibullus, *Scud.-Burg.*, *Proc. Bost. Soc. Nat. Hist.* XIII, p. 298, (1870); (*Erynnis T.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

434. TRISTIS, *BDL.*, (*Than. T.*) *Ann. Soc. Ent. Fr. 2me Ser.* California
X, p. 311, (1852); (*Nis. T.*) *Morris*, *Syn.*, p. 115, and adjacent
(1862); *Scud.-Burg.*, *Proc. Bost. Soc. Nat. Hist.* territory.
XIII, p. 303, (1870); Kirby, *Cat.*, p. 630, (1871); (*Erynnis T.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872); (*Nis. T.*) *Putnam*, *Proc. Dav. Acad.*, p. 186, (1876).

435. FUNERALIS, *SCUD.-BURG.*, *Proc. Bost. Soc. Nat. Hist.* Texas.
XIII, p. 293, (1870); Kirby, *Cat.*, p. 629, (1871); (*Erynnis F.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

†*436. PACUVIUS, *LINT. MSS.*, W. H. Edwds., *Trans. Am. Ent. Soc. VI.*, (1877). Arizona.

437. PERSIUS, *SCUD.*, *Proc. Ess. Ins. III*, p. 170, (1862); New Eng.,
Scud.-Burg., *Proc. Bost. Soc. Nat. Hist. XIII*, p. Middle and
286, (1870); Kirby, *Cat.*, p. 629, (1871); (*Erynnis P.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872); Western
(*Nis. P.*) *Lint.*, *Ent. Cont. 23d Rep. N. Y. State* States to the
Mus., t. 7, f. 3, 4, (1872). Pacific.

var. a. LUCILIUS, *LINT.*, *Ent. Cont. 23d Rep. N. Y. State Mus.*, p. 164, t. 7, f. 1, 2, (1872); *Scud.-Burg.*, *Proc. Bost. Soc. Nat. Hist. XIII*, p. 287, (1870); Kirby, *Cat.*, p. 630, (1871); (*Erynnis L.*) *Scud.*, *Syst. Rev. Am. Butt.*, p. 71, (1872).

Ground colour not so dark; the marks on upper surface primaries more distinct.

Larva on Scarlet Columbine, (*Aquilegia Canadensis*).

438. MARTIALIS, *SCUD.*, *Trans. Chicago Acad. Nat. Sc. I*, p. From Mass.
335, (1869); *Scud.-Burg.*, *Proc. Bost. Soc. Nat. south to the*
Hist. XIII, p. 291, (1870); Kirby, *Cat.*, p. 629, Gulf and
(1871); *Lint.*, *Ent. Cont. 23d Rep. N. Y. State* west to
Mus., t. 7, f. 7, 8, (1872); (*Erynnis M.*) *Scud.*, Texas and
Syst. Rev. Am. Butt., p. 71, (1872). Nebraska.
Larva on *Ceanothus Americanus*.

439. AUSONIUS, LINT., Ent. Cont. 23d Rep. N. Y. State Mus., p. 166, t. 7, f. 11, 12, (1872). Mid. States, O., Md., Va.
440. BRIZO, BDL.-LEC., (*Than. B.*) Lep. Am. Sept., t. 66, (1833); Bdl., Ann. Soc. Ent. Fr. 2me Ser. X, p. 310, (1852); (*Nis. B.*) Dbldy.-Hew., Gen. Diur. Lep. II, p. 520, (1850-1852); (*Than. B.*) Harris, Ins. Inj. Veg., Flint's Ed. p. 309, f. 132, (1862); (*Nis. B.*) Morris, Syn., p. 114, (1862); Scud.-Burg., Proc. Bost. Soc. Nat. Hist. XIII, p. 289, (1870); Kirby, Cat., p. 629, (1871); Lint., Ent. Cont. 23d Rep. N. Y. State Mus., t. 7, f. 9, 10, (1872); (*Erynnis B.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872). Canada; U. S. from the Atlantic west to Kansas and Texas.
Larva on Oaks, Wild Indigo.
441. ICELUS, LINT., Ent. Cont. 23d Rep. N. Y. State Mus., p. 162, t. 7, f. 5, 6, (1872); Scud.-Burg., Proc. Bost. Soc. Nat. Hist. XIII, p. 288, (1870); Kirby, Cat., p. 630, (1871); (*Erynnis I.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872). Can., N. E. and Middle States, Ohio, Ind., Ill., Mich.
442. TAGES, var. CERVANTES, GRASL., (*Than. C.*) Ann. Soc. Ent. Fr. p. 558, t. 17, B, f. 1, 2, (1836); Bdl., l. e., 2me Ser. X, p. 310, (1852); (*Erynnis C.*) Ramb., Cat. Lep. And., p. 83, (1857); (*Nis. v. C.*) Kirby, Cat., p. 628, (1871). California.
- †*443. ZAMPA, W. H. EDWDS., (*Hesp. Z.*) Trans. Am. Ent. Soc. V, p. 207, (1876); (*Lintneria Z.*) l. c. VI, (1877); (*Systasea Z.*) Can. Ent. IX, p. 120, (1877). Arizona.
444. CATULLUS, FABR., (*Hesp. C.*) Ent. Syst. III, 1, p. 348, (1793); (*Pap. C.*) Abb.-Sm., Ins. Ga. I, t. 24, (1797); Don., Ins. Ind., t. 50, (1800); (*Hesp. C.*) Latr., Enc. Meth. IX, p. 777, (1823); (*Nis. C.*) Morris, Syn., p. 115, (1862); Reak., Proc. Ent. Soc. Phil. VI, p. 150, (1866); Kirby, Cat., p. 630, (1871); (*Pholisora C.*) Scud., Syst. Rev. Am. Butt., p. 72, (1872). United States from the Atlantic to the Rocky Mts.
Larva on Pigweed, *Monardo Punctata*.
The *Pap. Catillus*, Cram., t. 260, f. F, G, which has been cited by W. H. Edwds. and others as this species, is an entirely different insect, being tailed like *Proteus* and belonging to the genus *Eudamus*.
445. HAYHURSTII, W. H. EDWDS., (*Hesp. H.*) Trans. Am. Ent. Soc. III, p. 22, (1870); (*Nis. H.*) Kirby, Cat., p. 631, (1871); (*Pholisora C.*) Scud., Syst. Rev. Am. Butt., p. 71, (1872). From Md. south to Gulf and west to Rocky Mts.
- †*446. ALPHEUS, W. H. EDWDS., (*Than. A.*) Trans. Am. Ent. Soc. V, p. 206, (1876). New Mexico
- †*447. PIRUS, W. H. EDWDS., Field and Forest III, p. 119, (1877). Colorado.
- †*448. NESSUS, W. H. EDWDS., Can. Ent. IX, p. 192, (1877). San Antonio, Texas.

GENUS 11. ACHLYODES, HUB.

449. THRASO, HUB., (*Urbanus vetus T.*) Samm. Ex. Schmiett. Texas, I, (1806-1816); (*Achl. T.*) Verz. Bek. Schmiett., p. Mexico, 108, (1816); (*Eantis T.*) Bdl., Sp. Gen., t. 13, f. 6, Cent. Am. (1836); (*Achl. T.*) Kirby, Cat., p. 631, (1871); Seud., Syst. Rev. Am. Butt., p. 70, (1872).
Hesp. Tumenund, W. H. Edwards., Trans. Am. Ent. Soc. III, p. 215, (1871).

APPENDIX.

Since the preceding has gone through press, the following additional citations have been noted and new species described :

GENUS PAPILIO, L.

1. PHILENOR, L. (p. 67); Fabr., Syst. Ent., p. 445, n. 12, (1775); Spec. Ins. II, p. 4, n. 15, (1781); Mant. Ins. II, p. 2, n. 15, (1787); Ent. Syst. III, p. 6, n. 18, (1793); Goeze, Ent. Beyt. III, p. 39, n. 2, (1779); Herbst, Natursyst. Schmett. II, p. 271, t. XIX, f. 2, 3, (1784); Shaw-Nodd., Nat. Miss. XXIII, t. 1010, (1790-1813); (*Lucertias* P.) Hüb., Verz. Bek. Schmett., p. 84, n. 858, (1816); Emu., Agr. Nat. Hist. N. Y., V, p. 201, (1854).
3. POLYDAMAS, L. (p. 67); Syst. Nat., Ed. X, p. 460, n. 11, (1758); Herbst, Natursyst. Schmett. II, p. 91, t. X, f. 6, 7, (1784); Goeze, Ent. Beyt. III, p. 34, n. 12, (1779); (*Ithobalus* P.) Hüb., Verz. Bek. Schmett., p. 88, n. 913, (1816).
I have on p. 68 cited Merian's upper fig. plate 31 to this species, inasmuch as Linne himself refers to the same figure in Syst. Nat., Ed. X; but on re-examination of said figure I am fully assured that it does not represent *Polydamas*, or even agree with Linne's short diagnosis, but represents *P. Androgeos*, Cram., which is ♀ form of *P. Polycaon*, Cram.; the latter is also represented on the lower part of the same plate.
5. AJAX, L. (p. 68); Syst. Nat., Ed. X, p. 462, n. 26, (1758); Fabr., Sp. Ins. II, p. 20, n. 79, (1781); Mant. Ins. II, p. 10, n. 90, (1787); Ent. Syst. III, p. 33, n. 97, (1793); Goeze, Ent. Beyt. III, p. 55, n. 32, (1779); Herbst, Natursyst. Schmett. III, p. 144, t. XLII, f. 5, 6, (1788); Shaw-Nodd., Nat. Miss. XXIV, t. 1024, (1790-1813).
On t. XLIV, vol. III of Herbst's Natursyst. the figures (1, 2) of *P. Miltiades*, copied from Aubenton, had for their original an example of *Demoleus* in which the hind wings had been replaced by those of *Ajax*.
Pap. Marcellus, Goeze, Ent. Beyt. III, p. 84, n. 56, (1779).
Papilio caudatus Carolinianus, Cutesby, Car. II, p. 100, t. 100, (1731); also same p. and t. in Ed. of 1754 and of 1771.
6. SINON, FABR. (p. 68); (*Iphiclides* S.) Hüb., Verz. Bek. Schmett., p. 82, n. 838, (1816).
7. CRESPHONTES, CRAM. (p. 69); Goeze, Ent. Beyt. III, p. 86, n. 64, (1779); Herbst, Natursyst. Schmett. III, p.

- 121, t. XXXIX, (1788); Glov., U. S. Agr. Rep. p. 264, (1858).
P. Thoas, Shaw-Nodd., Nat. Miss. IX, t. 331, (1790-1813).
10. **TURNUS**, LINN. (p. 69); Fabr., Mant. Ins. II, p. 9, n. 76, (1787); Ent. Syst. III, p. 29, n. 86, (1793); Goeze, Ent. Beyt. III, 1, p. 71, n. 5, (1779); Herbst, Natursyst. Schmett. III, p. 136, t. 41, f. 3, 4, (1788); Gosse, Can. Nat., p. 183, fig. (1840); Emm., Agr. Nat. Hist. N. Y., V, p. 201, (1854); Seud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 406, (1869); Saunders, Can. Ent. VI, p. 2, f. 1, 2, (1874).
Pap. caudatus max. etc., Catesby, Car. II, t. 83, (1731).
Pap. Antilochus, Linn., Syst. Nat., Ed. X, p. 463, n. 28, (1758); Fabr., Ent. Syst. III, 1, p. 24, n. 70, (1793).
P. Thersites, Lee, Coloured Spec. Ill. Nat. Hist. Butt. t. 2, (1806).
Pap. diurna, prima etc., Catesby, Carol., p. 97, t. 97, (1731).
P. Alcidas, Goeze, Ent. Beyt. III, 1, p. 77, n. 27, (1779).
 ———, Ray, Hist. Ins., p. 111, n. 98, (1710).
- ab. ♀ **GLAUCUS**, LINN. (p. 70); Syst. Nat., Ed. X, p. 460, n. 9, (1758); Fabr., Sp. Ins. II, p. 5, n. 18, (1781); Mant. Ins. II, p. 3, n. 18, (1787); Ent. Syst. III, 1, p. 4, n. 11, (1793); Herbst, Natursyst. Schmett. III, p. 229, t. XVII, f. 1, 2, (1788).
 Herbst's figures represent one of those curious ♀ aberrations that are intermediate between the black and yellow forms—neither as dark as one nor as light as the other.
11. **RUTULUS**, BDL. (p. 70); ♂ var. or ab.? Streck., Lep. Arizona. Rhop.-Het. I, p. 128, (1877).
13. **MACHAON**, LINN. (p. 70); Ray, Hist. Ins., p. 111, (1710); Merian, Ins. Eur., t. 38, (1730); Wood, Ind. Ent., p. 1, t. 1, f. 1, (1745); Scop., Ent. Carn., p. 166, n. 444, (1763); Fabr., Syst. Ent., p. 452, n. 42, (1775); Spec. Ins. II, p. 17, n. 67, (1781); Mant. Ins. II, p. 9, n. 77, (1787); Ent. Syst. III, 1, p. 30, n. 37, (1793); Herbst, Natursyst. Schmett. III, p. 162, t. XLV, (1788); Shaw-Nodd., Nat. Miss. XI, t. 398, (1790-1813); Lewin, Pap. Gr. Brit., p. 72, t. 34, (1795). Enc. Meth. Ins. Plates, t. 49, f. 4, 5, 6, (1797); Don., Nat. Hist. Brit. Ins. VI, p. 75, t. 211, (1797); Schaeff., Icon. I, t. 45, p. 63 in vol. of text, (1804); Hüb., Eur. Schmett., Pap., n. 775, 776, (1805-1824); West.-Humph., Brit. Butt., p. 8, t. I, (1841); Dbldy.-Hew., Gen., Vol. I, p. 16, n. 158, (1846-1850).
Papilio major caudatus, the Royal William, Pet. Mus., p. 35, n. 328, (1695); Pap. Brit., p. 1, n. 5, t. 2, f. 5, (1717).
P. Alaska, Seud., Proc. Bost. Soc. Nat. Hist. XII, p. 407, (1869).

14. *ZOLICAON*, BDL. (p. 71). Oregon.
 var. a. *OREGONIA*, W. H. EDWDS., (*P. Hippocrates* var. *Oregonia*) Trans. Am. Ent. Soc. V, p. 208, (1876).
 Differs from the normal form mainly in the anal ocellus.
17. *ASTERIUS*, CRAM. (p. 71); GOSSE, Can. Nat., p. 184, (1840).
P. Asterias, Emm., Agr. Nat. Hist. N. Y., p. 200, (1845).
P. Polygenes, Herbst, Natursyst. Schmett. II, p. 253, t. 18, f. 1, (♂), (1784).
Troilus, Herbst, l. c., p. 242, t. 17, f. 3, 4, (♀); Shaw-Nodd, XXIII, t. 1003, (1790–1813).
 var. c. *UTAHENSIS*, STRECK., Lep. Rhop.–Het. I, p. 128, (1877).
18. *TROILUS*, LINN. (p. 72); Syst. Nat., I, Ed. X, p. 459, n. 5, (1758); Herbst, Natursyst. Schmett. II, p. 291, t. XX, f. 2, (♂), (1784); Glover, Agr. Rep., p. 548, (1864), l. c., p. 314, (1868).
19. *PALAMEDES*, DRU. (p. 73).
P. Chaleus, Fabr., Sp. Ins. II, p. 18, n. 70, (1781); Mant. Ins. II, p. 9, n. 80, (1787); Herbst, Nat. Schmett. III, p. 139, t. 42, (1788).
P. Chaleas, Fabr., Ent. Syst. III, 1, p. 31, n. 90, (1793).
Pap. Flavomaculatus, Goeze, Ent. Beyt. III, 1, p. 87, n. 72, (1779).
 ———, Seba, Thes. IV, t. XLIII, f. 3, 4, (1765).
 ———, Encyc. Meth. Insects, Plates, t. 9, fig. 1, (1797).

GENUS PARNASSIUS, LATR.

20. var. *SMINTHEUS*, DBLDY.–HEW. (p. 73).
 var. a. *BEHRII*, W. H. EDWDS., Hy. Edwds., Proc. Cal. Acad. Sc. VI, (1876).
21. *CLODIUS*, MEN. (p. 73); Hy. Edwds., Proc. Cal. Acad. Sc. VI, (1876).
 var. *MENETRIESII*, HY. EDWDS., Proc. Cal. Acad. Sc. Calif.; Mt. Nebo, Utah. VI, (1876).
 Smaller, and with the red spots of secondaries very small.
22. *EVERSMANNI*, MEN. (p. 73); Scud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 407, (1869).

GENUS NEOPHASIA, BEHR.

24. *MENAPIA*, FELD. (p. 74); W. H. Edwds., Trans. Am. Ent. Soc. IV, p. 63, (1872–1873).

GENUS LEPTALIS, DALM.

25. *MELITE*, LINN. (p. 73); Amœn. Acad. VI, p. 403, n. 56, (1763); Fabr., Syst. Ent., p. 460, n. 71, (1775); Spec. Ins. II, p. 27, n. 108, (1781); Mant. Ins. II,

- p. 13, n. 126, (1787); Herbst, Nat. Schmett. IV, p. 165, t. LXXVI, f. 3, 4, (1790). Enc. Meth. Ins. Plates, t. 21, f. 10, (1797).
Pap. Versicolor, Goeze, Ent. Beyt. III, 1, p. 123, n. 73, (1779).
 ———, *Seba*, Thes. IV, t. XXXV, f. 5, 6, (1765).

GENUS PIERIS, SCHRANCK.

26. NAPI, LINN. (p. 74); Syst. Nat., Ed. X, I, p. 468, n. 60, (1758); Fabr., Syst. Ent., p. 469, n. 112, (1775); Sp. Ins. II, p. 39, n. 163, (1781); Mant. Ins. II, p. 18, n. 185, (1787); Ent. Syst. III, 1, p. 187, n. 576, (1793); Herbst, Nat. Schmett. V, p. 89, t. XCII, (1792). Enc. Meth. Ins. Plates, t. 52, f. 2, (1797); (*Pieris N.*) Hy. Edwds., Proc. Cal. Acad. Sc. VI, (1876).
Pieris Venosa, Scud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 406, (1869).
Pieris Oleracea, Glover, Agr. Rep., p. 79, f. 37, (1870).
Pontia Brassicae?, Rath., Agr. Rep., p. 592, f. 7, 8, (1861).
Pap. Alba, etc., *Pet.*, Pap. Brit., p. 1, n. 15, 16, t. 2, f. 15, 16, (1717).
 28. RAPIE, LINN. (p. 75); Fabr., Syst. Ent., p. 469, n. 111, (1775); Sp. Ins. II, p. 39, n. 162, (1781); Mant. Ins. II, p. 18, n. 184, (1793); Ent. Syst. III, 1, p. 186, n. 575, (1797); Herbst, Nat. Schmett. V, p. 64, t. LXXXVII, (1792). Enc. Meth. Ins. Plates, t. 52, f. 6, (1797); (*Pieris R.*) Hy. Edwds., Proc. Cal. Acad. Sc. VI, (1876); Glover, Agr. Rep., p. 78, f. 36, (1870).
Pap. Alba, etc., *Pet.*, Pap. Brit., p. 1, n. 7, 8, t. 1, f. 7, 8, (1717).
 var. a. NOVANGLIAE, SCUD., (p. 76); Bull. Soc. Ent. Fr. (5) III, p. 57, (1873).
 30. PROTODICE, BDL.-LEC. (p. 76); Glover, Agr. Rep., p. 79, f. 38, (1870).
 33. CHLORODICE, HUB. (p. 76).
Pieris Beckeri, W. H. Edwds., Proc. Cal. Acad. Sc. VI, (1876).
 34. CALYCE, W. H. EDWDS. (p. 77); Hy. Edwds., Proc. Cal. Acad. Sc. VI, (1876).

There is very little doubt that this is the first or spring generation of *P. Occidentalis*, Reak. (No. 31).

GENUS ANTHOCHARIS, BDL.

- †*43. THOOSA, SCUD., (*Synchlote T.*) Hayden's Bull. U. S. Geo. Arizona. Sur. IV, p. 257, (1878).

Evidently allied to *Cethura*, Feld.; perhaps a var. of that species, or else = to *A. Julia*, W. H. Edwds.

GENUS CALLIDRYAS, BDL.

46. EUBULE, LINN. (p. 79); (*Pap. E.*) Shaw-Nodd., Nat. Miss. XXIII, t. 1018, (1790-1813); (*Call. E.*) Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).
Pap. Marcellina, Herbst, Nat. Schmiett. V, p. 189, t. CX, f. 1, 2, (♂), (1792). Enc. Meth. Ins. Plates, t. 13, f. 4-6, (1797).
Pap. Eubule, Herbst, l. c., p. 202, t. CXII, f. 3, 4 (♀).
 47. CIPRIS, FABR. (p. 79); (*Call. C.*) But., Lep. Ex., p. 69, t. 26, (1871).

GENUS GONEPTERYX, LEACH.

49. MÆRULA, FABR. (p. 79); Spec. Ins. II, p. 51, n. 222, (1781); Mant. Ins. II, p. 24, n. 255, (1787).
Pap. Eclypsis, Herbst, Nat. Schmiett. V, p. 157, t. CIII, (1792).

GENUS MEGANOSTOMA, REAK.

51. EURYDICE, BDL. (p. 80); Streck., Lep. Rhop.-Het. I, p. 6, (1872).
 var. a. AMORPHILÆ, HY. EDWDS., Proc. Cal. Acad. Sc. VII, (1876).

GENUS COLIAS, FABR.

53. PALÆNO, LINN. (p. 80).
Pap. Europome, Herbst, Nat. Schmiett. V, p. 217, t. CXV, (1792).

GENUS TERIAS, SWAINS.

71. MEXICANA, BDL. (p. 85); Hy. Edwds., Proc. Cal. California. Acad. Sc. VII, (1876).
 73. ELATHEA, CRAM. (p. 85); Fabr., Mant. Ins. II, p. 20, n. 209, (1787); Herbst, Nat. Schmiett., p. 229, t. CXVII, f. 5, 6, (1792).
 75. DELIA, CRAM. (p. 85); Herbst, Nat. Schmiett. V, p. 230, t. CXVII, f. 7, (1792).

GENUS THECLA, FABR.

81. HALESUS, CRAM. (p. 86); Fabr., Sp. Ins. II, p. 116, n. 517, (1781); Mant. Ins. II, p. 67, n. 638, (1787). Enc. Meth. Ins. Plates, t. 40, f. 4, (1797); Herbst, Nat. Schmiett. X, p. 322, t. CCXCV, (1800).
 84. CECROPS, FABR. (p. 86); Herbst, Nat. Schmiett. XI, p. 144, (1804).
 †*84½. CLYTIE, W. H. EDWDS., Field and Forest III, p. 88, (1877) San Antonio, Texas.
 Seems to be close to *Beon*, Cram.
 92. ACIS, DRU. (p. 88); Cram., II, t. 175, f. C, D, (1779).
Hesp. Rur. Ixion, Fabr., Syst. Ent., p. 523, n. 340,

- (1775); Sp. Ins. II, p. 121, n. 540, (1781); Mant. Ins. II, p. 71, n. 671, (1787); Herbst, Nat. Schmett. X, p. 280, t. CCLXXXIX, f. 1, 2, (1800).
96. var. a. FULVESCENS, HY. EDWDS., Proc. Cal. Acad. Sc. Havilah, California.
VII, (1876).
- 101½. KALI, STRECK., Lep. Rhop.—Het. I, p. 129, (Sept., 1877). Arizona.
102. DAMON, CRAM. (p. 89); Herbst, Nat. Schmett. XI, p. 24, t. CCXCIX, f. 9, 10, (1804). Enc. Meth. Ins. Plates, t. 41, f. 14, (1797).
- Pap. Simæthis*, Fabr., Syst. Ent., p. 523, n. 338, (1775); Sp. Ins. II, p. 120, n. 537, (1781); Mant. Ins. II, p. 70, n. 668, (1787); Ent. Syst. III, p. 286, n. 97, (1793); Herbst, Nat. Schmett. X, p. 282, t. CCLXXXIX, f. 3, 4, (1804).
113. AUGUSTUS, KIRBY (p. 91).
Incisalia A. var. Crocisioides, Scud., Buff. Bull. III, p. 104, (1876).
- 113½. FOTIS, STRECK., Lep. Rhop.—Het. I, p. 129, (Sept., 1877). Arizona.
- 114½. SHERIDONII, W. H. EDWDS., Field and Forest III, p. 48, (1877). Big Horn Mts.

The naming of this insect after a military celebrity is a most lamentable piece of sycophancy which cannot be too much deplored. Lieut.-Gen. P. H. Sherillan may have been and doubtless was a good soldier and an efficient officer—though being nothing of a politician myself, and consequently not interested in the late war, I am not likely to be much of a judge as regards the question of his military greatness—but I think I may safely venture to doubt whether the General knows more of entomological science than does the horse he rides; and the designating of an insect by his name is under such circumstances an insult instead of an honour—an insult to the General and a greater one to science.

GENUS LYCÆNA, FABR.

- 125½. STRIATA, W. H. EDWDS., Field and Forest III, p. 88, San Antonio, Texas.
(1877).
130. OPTILETE, KNOCH (p. 94); Fabr., Ent. Syst. III, 1, p. 297, n. 131, (1793); Herbst, Nat. Schmett. XI, p. 255, t. CCCXVI, f. 8, 9, 10, (1804).
136. LUCIA, KIRBY (p. 95); Scud., Proc. Bost. Soc. Nat. Hist. Vol. XII, p. 406, (1869).

GENUS FENISECA, GROTE.

169. TARQUINIUS, FABR. (p. 103); Herbst, Nat. Schmett. XI, p. 376, (1804).

GENUS EUMÆUS, HUB.

170. ATALA, POEY (p. 103); (*Eum. A.*) Scud., Mem. Bost. Soc. II, p. 413–419, t. 14, (1875).

GENUS CHARIS, HUB.

174. CENEUS, LINN. (p. 104); Syst. Nat., Ed. X, I, p. 487, n. 181, (1758).

- 176½. GUADELOUPE, STRECK., Lep. Rhop.-Het. I, p. 131, (Sept., 1877). San Antonio, Texas.
Char. Australis, W. H. Edwds., Field and Forest III, p. 87, (Nov., 1877).

GENUS LIBYTHEA, FABR.

178. CARINENTA, CRAM. (p. 105); Enc. Meth. Ins. Plates, t. 37, f. 4, (1797); Fabr., Sp. Ins. II, p. 104, n. 455, (1781); Mant. Ins. II, p. 56, n. 554, (1787); Ent. Syst. III, 1, p. 139, n. 428, (1793); Herbst, Nat. Schmett. VII, p. 85, t. CLXV, f. 8, 9, (1794).
 178½. LARVATA, STRECK., Lep. Rhop.-Het. I, p. 130, (Sept., 1877). San Antonio, Texas.

GENUS DANAIS, LATR.

179. PLEXIPPUS, LINN. (p. 105); Syst. Nat., Ed. XII, I, 2, p. 767, (1767); Herbst, Nat. Schmett. VII, p. 19, t. CLVI, f. 1, 2, (1794); Fabr., Syst. Ent., p. 481, n. 170, (1775); Sp. Ins. II, p. 55, n. 243, (1781); Mant. Ins. II, p. 27, n. 281, (1787).
Pap. Archippus, Shaw-Nodd., Nat. Miss. XXIII, t. 1006, (1790-1813).
 180. BERENICE, CRAM. (p. 106); Herbst, Nat. Schmett. VII, p. 22, t. CLVII, f. 1, 2, (1794). Enc. Meth. Ins. Plates, t. 33, f. 3, (1797).
Pap. Eriippus, Fabr., Ent. Syst. III, 1, p. 49, n. 152, (1793).

GENUS HELICONIUS, LATR.

183. CHARITHONIA, LINN. (p. 107).
Pap. Charitonia, Fabr., Sp. Ins. II, p. 30, n. 126, (1781); Mant. Ins. II, p. 15, n. 147, (1787); Ent. Syst. III, 1, p. 170, n. 528, (1793); Herbst, Nat. Schmett. IV, p. 163, t. LXXVI, f. 7, (1790).
 Enc. Meth. Ins. Plates, t. 19, f. 1, (1797).

GENUS COLÆNIS, HUB.

184. JULIA, FABR. (p. 108); Fabr., Sp. Ins. II, p. 99, n. 435, (1781); Mant. Ins. II, p. 54, n. 529, (1787).
Pap. Luteus, Goeze, Ent. Beyt. III, 1, p. 119, n. 45, (1779).
P. Nigromarginatus, Goeze, l. c., p. 122, n. 64, (1779).
 ———, Seba, Thes. IV, t. IV, f. 19, 20, t. XXVIII, f. 13, 14, (1765).
 185. DELILA, FABR. (p. 108); Sp. Ins. II, p. 100, n. 439, (1781); Mant. Ins. II, p. 54, n. 534, (1787); Ent. Syst. III, p. 57, n. 176, (1793).
Pap. Cillene, Herbst, Nat. Schmett. IV, p. 93, t. LXVII, f. 8, 9, (1790).

GENUS AGRAULIS, BDL.-LEC.

186. VANILLÆ, LINN. (p. 108); Fabr., Syst. Ent., p. 518, n. 319, (1775); Sp. Ins. II, p. 111, n. 486, (1781); (*Agr. V.*) Glov., Agr. Rep., p. 106, t. IX, (1855); l. c., p. 43, (1866); Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).

GENUS EUPTOIETA, DBLDY.

187. CLAUDIA, CRAM. (p. 109).
Pap. Daunius, Herbst, Nat. Schmett. IX, p. 184, t. CCLVI, f. 1, 2, (1798).
Pap. Nigrosignatus, Goeze, Ent. Beyt. III, 1, p. 183, n. 87, (1779).
Argyn. Columbina, Glov., Agr. Rep., p. 61, (1854); l. c., p. 66, 105, t. IX, (1855).
188. HEGESIA, CRAM. (p. 109).
Pap. Columbina, Herbst, Nat. Schmett. IX, p. 182, (1798); (*Eupt. H.*) Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).

GENUS ARGYNNIS, FABR.

189. DIANA, CRAM. (p. 109); Fabr., Mant. Ins. II, p. 63, n. 594, (1787). Enc. Meth. Ins. Plates, t. 35, f. 2, (1797).
190. IDALIA, DRU. (p. 109); Fabr., Sp. Ins. II, p. 109, n. 478, (1781); Mant. Ins. II, p. 63, n. 593, (1787); Shaw-Nodd., Nat. Miss. XXIV, t. 1035, (1790-1833). Enc. Meth. Ins. Plates, t. 37, f. 1, (1797).
Pap. Cytherea, Muell., Voll. Naturs. I, p. 619, t. 19, (1774).
Pap. Huttonius, Goeze, Ent. Beyt. III, 1, p. 362, n. 5, (1779).
193. CYBELE, FABR. (p. 111); Sp. Ins. II, p. 109, n. 477, (1781); Mant. Ins. II, p. 62, n. 592, (1787).
196. APHRODITE, FABR. (p. 111); Herbst, Nat. Schmett. IX, p. 181, (1798).
198. ATLANTIS, W. H. EDWDS. (p. 112); Mosch., Stett. Ent. Zeit., p. 156, (1874).
214. MYRINA, CRAM. (p. 115); Fabr., Sp. Ins. II, p. 109, n. 476, (1781); Mant. Ins. II, p. 62, n. 591, (1787); Ent. Syst. III, p. 145, n. 444, (1793); (*Mel. M.*) Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876). Alaska.
215. APIHRAPE VAR. TRICLARIS, HUB., (p. 115); (*Brenthis T.*) Scud., Proc. Bost. Soc. Nat. Hist. XVII, p. 294, (1875).
217. CHARICLEA, SCHNEIDER (p. 115); (*Brenthis C.*) Scud., l. c., p. 297, (1875).
218. FREJA, THNB., (p. 116); (*Pap. F.*) Schneider, Neu. Mag. IV, p. 420, (1792).
Pap. Tullia, Fabr., (*Otto*) Faun. Groen., p. 192, n. 143, (1780).

220. FRIGGA, THNB. (p. 117); (*Pap. F.*) Schneid., Neu. Mag. IV, p. 416, (1792), V, p. 587, (1794); Herbst, Nat. Schmett. X, p. 135, t. CCLXXXIII, f. 1, 2, (1800); (*Brenthis F.*) Scud., Proc. Bost. Soc. Nat. Hist. XVII, p. 306, (1875).
221. BELLONA, FABR. (p. 117); Sp. Ins. II, p. 111, n. 484, (1781); Mant. Ins. II, p. 64, n. 600, (1787).
- †*222 $\frac{1}{4}$. MACARIA, W. H. EDWDS., Field and Forest III, p. 86, (1877). Havilah, California.
- †*222 $\frac{1}{2}$. COLUMBIA, W. H. EDWDS., l. c., p. 102, (1877). British Col.

GENUS MELITÆA, FABR.

231. THAROS, DRU. (p. 120).
Pap. Morphius, Fabr., Sp. Ins. II, p. 62, n. 278, (1781).
Pap. Morpheus, Fabr., Mant. Ins. II, p. 30, n. 321, (1787); Ent. Syst. III, 1, p. 155, n. 479, (1793).
- ‡230 $\frac{1}{4}$. IMITATA, STRECK., Lep. Rhop.-Het. I, p. 130, (Sept., 1877). San Antonio, Texas.
Mel. Ulrica, W. H. Edwds., Can. Ent. IX, p. 189, (Oct., 1877).
- ‡230 $\frac{1}{2}$. LARUNDA, STRECK., Lep. Rhop.-Het. I, p. 130, (Sept., 1877). San Antonio, Texas.
Mel. Dymas, W. H. Edwds., Can. Ent. IX, p. 190, (Oct., 1877).
249. PILETON, DRU. (p. 125); (*Pap. P.*) Fabr., Sp. Ins. II, p. 54, n. 237, (1781); Mant. Ins. II, p. 26, n. 275, (1787). Enc. Meth. Ins. Plates, t. 38, f. 3, (1797); (*Mel. P.*) Gosse, Can. Nat., p. 227, fig., (1840); Packard, Guide, p. 255, f. 184, (1869).
- ‡252 $\frac{1}{4}$. ALMA, STRECK., Lep. Rhop.-Het. I, p. 135, (1877). Ariz'a, Utah
- †*252 $\frac{1}{2}$. BOLLII, W. H. EDWDS., Field and Forest III, p. 101, (1877). San Antonio, Texas.

GENUS VANESSA, FABR.

259. var. a. UMBROSA, LINT.
Pap. C-Aureum, Shaw-Nodd., Nat. Miss. XXIV, t. 1045, (1790-1813).
261. C-ALBUM, LINN.
Le. P. Gamma, Enc. Meth. Ins. Plates, t. 54, f. 9-11, (1797).
265. var. a. GRACILIS, G.-R. (p. 131); Scud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 405, (1869).
270. ANTIOPA, LINN. (p. 133); (*Pap. A.*) Shaw-Nodd., Nat. Miss. XVIII, t. 744, (1790-1813); (*Van. A.*) Glov., Agr. Rep., p. 37, (1865); (*Pap. A.*) Scud., Syst. Rev. Am. Butt., p. 32, (1872).
P. Morio, Enc. Meth. Ins. Plates, t. 55, f. 4-7, (1797).

GENUS PYRAMEIS, HUB.

271. ATALANTA, LINN. (p. 135); (*Pap. A.*) Shaw-Nodd., Nat. Miss. V, t. 157, (1790-1813). Enc. Meth. Ins. Plates, t. 29, f. 1, (1797); (*Van. A.*) Scud., Syst. Rev. Am. Butt., p. 42, (1872). (Hybrid bet. *P. Atalanta* and *P. Curge*, Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).
P. Vulcain, Enc. Meth. Ins. Plates, t. 59, f. 1, (1797).
272. CARDUI, LINN. (p. 136); (*Pap. C.*) Shaw-Nodd., Nat. Miss. XI, t. 430, (1790-1813). Enc. Meth. Ins. Plates, t. 28, f. 6, (1797); (*Van. C.*) Scud., Syst. Rev. Am. Butt., p. 43, (1872).
274. HUNTERA, FABR. (p. 138); (*Pap. H.*) Shaw-Nodd., Nat. Miss. XXIV, t. 1050, (1790-1813); (*Van. H.*) Scud., Syst. Rev. Am. Butt., p. 43, (1872).

GENUS JUNONIA, HUB.

275. CENIA, HUB. (p. 138); Scud., Syst. Rev. Am. Butt., p. 43, (1872).

GENUS CALLICORE, HUB.

280. CLYMENA, CRAM. (p. 140).
Najas hilaris Chlymene, Hüb., Samml. Ex. Schmett. I, (1806-1816).

GENUS TIMETES, BDL.

285. PELEUS, SULZ.
Pap. Petreus, Enc. Meth. Ins. Plates, t. 11, f. 4, (1797).

GENUS LIMENITIS, FABR.

288. EPIHESTRION, STOLL (p. 143).
Lim. Ursula, Emm., Agr. Nat. Hist. N. York, p. 203, t. 33, (1854).
289. ARTHEMIS, DRU. (p. 144); Gosse, Can. Nat., p. 220, fig., (1840).
291. LORQUINI, BDL. (p. 145); Hy. Edwds., Proc. Cal. Acad. Sc. VII, (1876).

GENUS APATURA, FABR.

293. CELTIS, BDL.-LEC. (p. 145).
 var. d. ANTONIA, W. H. EDWDS., Field and Forest III, San Antonio, Texas, p. 103, (1877).
Ap. Celtis var. *Streck.*, Ruffner's Annual Rep., Dep. Missouri, p. 142, (1876).

GENUS EREBIA, DALM.

309. HAYDENII, W. H. EDWDS. (p. 151); Trans. Am. Ent. Soc. V, p. 19, (1874).

310. MANCINUS, DBLDY.-HEW. (p. 152); Scud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 405, (1869).
 312. DISCOIDALIS, KIRBY (p. 152); Scud., Proc. Bost. Soc. Nat. Hist., Vol. XII, p. 405, (1869).

GENUS SATYRUS, FABR.

- 321½. ASHITAROTH, STRECK., Lep. Rhop.-Het. I, p. 129, Arizona. (Sept., 1877).
Neominois Dionysus, Scud., Hayden's Bull. U. S. Geolog., Geograph. Survey IV, p. 254, (Feb., 1878).

GENUS COENONYMPHA, HUB.

334. OCHRACEA, W. H. EDWDS. (p. 160); Scud., Hayden's Bull. Geo. Sur. IV, p. 254, (1878).

GENUS EUDAMUS, SWAINS.

340. TITYRUS, FABR. (p. 162); (*Epargyreus T.*) Scud., Hayden's Bull. Geo. Sur. IV, p. 257, (1878).
 342. EPIGENA, BUTL. (p. 162); Lep. Ex., p. 65, t. 25, (1871).

GENUS ÆGIALE, FELD.

351. YUCCAE, BDL.-LEC. (p. 163); (*Megathymus Y.*) Riley, Trans. Acad. Sc. of St. Louis III, p. 566, (1877); West, Trans. Linn. Soc. 2d Ser., Vol. I, p. 205, (1875).
 var. a. COLORADENSIS, RILEY, (*Megath. C.*) l. c., p. Colorado. 567, 568, (1877).
 Much smaller and paler coloured.
 352. COFAQUI, STRECK. (p. 164); Ruffner's Ann. Rep. Dep. Missouri, p. 1429, (1876).

GENUS PAMPHILA, FABR.

371. COMMA, LINN. (p. 167).
 var. a. CATTENA, MEYER-DUR., Schmett. Schweiz., p. 217, (1852).
 †*371½. MORRISONI, W. H. EDWDS., Field and Forest III, p. Colorado. 116, (1877).
 †*374½. RHESUS, W. H. EDWDS., Field and Forest III, p. 116, Colorado. (1877).
 †*385½. RHENA, W. H. EDWDS., Field and Forest III, p. 115, (1877).
 †*391½. LOAMMI, WHITNEY, (*Lerema L.*) Can. Ent. VIII, p. Florida. 76, (1876).
 †*408½. PHYLACE, W. H. EDWDS., Field and Forest III, p. Colorado. 117, (1877).
 †*413½. AENUS, W. H. EDWDS., (*Amblyscirtes A.*) Field and Forest III, p. 118, (1877).
 416. SIMILIS, STRECK. (p. 174).
Amblyscirtes Nysa, W. H. Edwds., Can. Ent. IX, p. 191, (Oct., 1877).

- †*416 $\frac{1}{2}$. NILUS, W. H. EDWDS., (*Amblyseirtes N.*) Field and San Antonio,
Forest III, p. 118, (1877). Texas.

GENUS ANCYLOXYPHA, FELD.

- †*420 $\frac{1}{2}$. LIBYA, SCUD., (*Heteropterus L.*) Hayden's Bull. U. S. Arizona.
Geo. Sur. IV, p. 258, (1878).

CORRIGENDA.

In alluding to "sixth line," "eleventh line," etc., etc., it is (with the exception of the first correction of all—on p. 3) always to be understood as counting from the name that comes after the No., and under which the correction is to be made, and not from the top of the page.

Page

3. On termination of tenth line read "*Gorilla Custaniceps*" instead of "*Gorilla Caniceps*."
22. In regard to the Post-Office regulations alluded to on lower half of this page, I would say these are constantly undergoing changes; even since the foregoing was printed the weight allowed for packages has been increased from 12 oz. to 4 lbs.; in order to keep informed on these points it is always best to inquire at your Post-Office for particulars.
67. No. 3. POLYDAMAS. On sixth line read "Cram., Pap. Ex. III, p. 33, t. 211," instead of "t. 221." On fifth line after "Ent. Syst." read "III" instead of "V."
68. No. 5. AJAX. On first line read "AJAX, LINN., Syst. Nat. I, 2, p. 750, (1767)," instead of "(1867)."
70. No. 13. MACHAON. The "(1816)" that comprises the eleventh line should terminate the twelfth, which latter would then properly read "*Jasoniades Machaon*, Hüb., Verz. Bek. Schmett., p. 83, (1816)."
71. On second line from top of page, add after first two words "Vol. XII, p. 407," so that it reads "Nat. Hist., Vol. XII, p. 407, (1869)."
71. No. 17. ASTERIUS. The last word on the fifth line, and the first on the sixth line, should be transposed to read "Ent. Syst." instead of "Syst. Ent."
80. No. 50. CLORINDE. On beginning of fourth line after "599," place "t. 19, f. 4," so that it will read "599, t. 19, f. 4, (1836)."
80. No. 52. CÆSONIA. End of eleventh line "(1702?)" instead of "(1767)."
80. No. 53. PALÆNO. On first line after "PALÆNO, LINN." place "(Pap. P.)."
95. No. 134. LUPINI. Add to the end of the sixth line, "(1874)."
96. No. 138. SAGITTIGERA. On commencement of fifth line read "Catalina" instead of "Catilina."
96. No. 139. LYGDAMUS. Make first word on second line "(1841)" instead of "(1842)."
99. No. 149. ORBITULUS. Read last word on first line "Pedemontana" instead of "Piedmontana."
100. No. 150. AQUILO. End of eighth line read "(1876)" instead of "(1874)."
100. No. 152. SPECIOSA. Read "Proc. Cal. Acad. Nat. Sc. VI, (1876)," instead of "Proc. Cal. Acad. Nat. Sc. V, p. 6, (1876)."
102. No. 165. GORGON. The locality of this species, which was accidentally omitted, is California.

Page

108. No. 184. JULIA. On tenth line, after "Schmett." place "IV;" and on eleventh line place "(1790)" instead of "(1783-1804)."
108. No. 186. VANILLE. On eighth line, after "Natusyst." place "IX;" and in place of "(1783-1804)" read "(1798)."
109. No. 187. CLAUDIA. Place "*Pap. Daunius, Herbst.*" as a synonym of this species instead of as a synonym of "188. EUP. HEGESIA, CRAM.," as I have it on sixth line from No. 188, same page.
110. No. 190. ab. a. ASHTAROTH. On second line after "Phil., p. 352," read "(1859)" instead of "(1852)."
111. No. 193. CYBELE. After "Schmett., IX," on third line read "p. 176" instead of "p. 178."
111. No. 196. APHRODITE. On eighth line insert at beginning "W. H. Edwds.," so as to read "W. H. Edwds., Can. Ent. VI, p. 121," etc.
117. No. 221. var. a. EPITHORE. On second line place "Bdl.," in front of "Lep. Cal.," so that it reads "Bdl., Lep. Cal.," etc.
120. No. 231. ab. b. PACKARDII. The fourth line, which reads "Larva on *Actinomeris Helianthoides*," should be taken out and replaced below the next two lines (which begin, "The dark colour," etc., etc.), as the food-plant designated is not meant to be that of ab. *Packardii*, but of the stem forms *Tharos* and *Marcia*.
125. No. 250. LEANIRA. On eighth line read "var. a. OBSOLETA," instead of "var. a. OBLITERATA."
129. No. 260. After "var. a. DRYAS, W. H. EDWDS.," place "(*Grapta*)."
140. No. "289" should be "279."
160. No. 330. (*Californica*) var. c. ERYNGII. On second line read "Sc. VI, (1876)" instead of "Sc. V, 6, (1876)."
190. No. 285. After "PELEUS, SULZ.," place "(141)."
190. No. 288. "EPHESTRION" should be "EPHESTION."

INDEX

TO

CATALOGUE OF MACROLEPIDOPTERA.

RHOPALOCERES.

Species and varieties are in Roman letters.

Genera are in Roman capitals.

Synonyms are in italics.

The No. immediately following the name, and preceding the No. of the page, corresponds with that prefixed to the same name in the Catalogue; thus, "Acadica 99, 88," means that Acadica is No. 99 on page 88.

The synonyms are numbered with the same numbers as the species with which they are identical.

To each species or variety is always affixed the name (abbreviated) of the author of the species.

To each species is affixed the name (abbreviated) of the genus to which it belongs, regardless of that in which it may have been first placed by its author; thus, "Arthemis Dru. Lim." is *Limenitis Arthemis*, Drury, although Drury placed it in *Papilio*.

The generic names attached to the synonyms are always those in which the authors of said synonyms originally placed them; thus, "*Argiolus* Abb.-S. Pap." does not mean that *Argiolus* belongs to *Papilio* (*Pap.*), but only that it was placed there by Abbott and Smith when they published the species.

A	Page		Page
Abbotii W. Edw. Pap. 5 b.	68	<i>Ahaton</i> Har. Hesp. 382,	169
Acadica W. Edw. Th. 99,	88	Ajax Lin. Pap. 5,	68, 181
Acastus W. Edw. Mel. 241,	124	<i>Ajax</i> Cl. Pap. 17,	71
Accius Abb.-S. Pam. 391,	171	Alb. ab. Ap. 293 a.	145
<i>Achaja</i> Kby. Cup. 146 a.	98	Alba Col. ab. 55 a.	81
Acheronta Fab. Meg. 296,	147	Alba Col. ab. 58 a.	82
ACHLYODES HUB.	180	Alba Col. ab. 60 b., e.	83
Acis Dru. Th. 92,	88, 185	<i>Alba</i> etc. Pet. Pap. 26, 28,	184
Acmon Dbl.-H. Lyc. 126,	93	Alba Ter. ab. 76 a.	85
<i>Aconootus</i> Scud. Hesp. 385,	170	<i>Alba</i> W. Edw. Syr. 428,	177
Adenostomatis H. Edw. Th. 97,	88	Albanus Feld. Pap. 12 a.	70
Adiante Bdl. Arg. 211,	115	<i>Albina</i> Poey, Ter. 77,	85
<i>Adiaste</i> Behr, Arg. 211,	115	<i>Albusta</i> Sepp, Pap. 29,	76
Adjutrix Scud. Syn. 253,	126	<i>Alce</i> W. Edw. Lye. 125,	93
<i>Adraste</i> Kby. Arg. 211,	115	Alcestis W. Edw. Arg. 196 a.	112
ÆGIALE FELD.	163, 191	Alcestis W. Edw. Th. 88,	87
<i>Achaja</i> Behr, Lyc. 146 a.	98	<i>Aleidamas</i> Goetze, Pap. 10,	182
Aenus W. Edw. Pam. 413½,	191	<i>Aleidamus</i> Cr. Pap. 10,	70
<i>Etna</i> Scud. Hed. 384 a.	170	<i>Alcionea</i> Cr. Pap. 184,	108
<i>Affinis</i> W. Edw. Th. 114,	91	<i>Alcyonea</i> Hbst. Pap. 184,	108
AGANISTHOS BDL.	146	Alexandra W. Edw. Col. 55,	81
AGERONIA HUB.	139	<i>Aliaska</i> Scud. Pap. 13,	71, 182
<i>Aglaia</i> W. Edw. Arg. 191,	110	Alicia W. Edw. Ap. 293 b.	146
AGRAULIS BDL.-LEC.	108, 188	Alma Strk. Mel. 252½,	189
Agricola Bdl. Pam. 364,	166	Alope ab. Sat. 328 a.	158

	Page		Page
Barbara H. Edw. Col. 57,	82	<i>C Album Bdl.-L.</i> Van. 260,	129
Batabano Lef. Ery. 347,	163	<i>C Album Behr.</i> Grap. 263,	131
Batesii Reak. Mel. 232,	121	<i>C Album L.</i> Van. 261,	129, 189
Bathyllus Ab -S. Eud. 343,	162	<i>Calchas Behr.</i> Lyc. 132,	94
<i>Bathyllus Har</i> Eud. 343 a.	163	<i>Calchas Gad.</i> Pap. 19,	73
Battoides Behr, Lyc. 131,	94	<i>Californiana, Edusa var. Men.</i>	
<i>Beckerii W Edw.</i> Pier. 33,	77	Col. 60 a.	83
Behrensii W. Edw. Arg. 205 b.	113	<i>Californica Bdl.</i> Ch. 320,	155
Behrii W. Edw. Col. 65,	84	<i>Californica Butl. Het.</i> 292,	145
Behrii W. Edw. Lyc. 142,	97	<i>Californica Bdl. Van.</i> 268,	133
Behrii W. Edw. Parn. 20,	73, 183	<i>California Dbl.-H. Coen.</i> 330,	159
Behrii W. Edw. Th. 107,	90	<i>Californica Men.</i> Pap. 14,	71
<i>Belladonna Pet. Pup.</i> 272,	137	<i>Californica Reak.</i> Mel. 182,	107
<i>Belladonna virgin. Pet. Pap.</i> 274,	138	<i>Californica Scud. Pot.</i> 422,	175
Bellona Fab. Arg. 221,	117, 189	<i>Californica W. Edw. Th.</i> 99,	88
Bellona var. 221 b.	117	<i>Californicus Bdl. Sat.</i> 330,	159
<i>Beon Hub. Str.</i> 84,	87	<i>Callias var. Mead.</i> Ereb. 306,	151
Berenice Cr. Dan. 180,	106, 187	<i>Callias W. Edw.</i> Ereb. 306,	151
<i>Bethyllus Dbl.-H. Gon.</i> 343,	162	CALLICORE HUB.	140, 190
Bimacula G.-R. Pam. 385,	170	CALLIDRYAS BDL.	78, 185
Bischoffii W. Edw. Arg. 213,	115	<i>Callina Bdl.</i> Mel. 235,	122
<i>Boisduvaliana Feld.</i> Ter. 71,	85	<i>Callippe Bdl.</i> Arg. 203,	112
Boisduvalii Dup. Arg. 217 a.	116	<i>Calverleyi Gr.</i> Pap. 17 c.	72
<i>Boisduvalii Har. Hip.</i> 329,	159	<i>Calyce W. Edw.</i> Pier. 34,	77, 184
Boillii W. Edw. Mel. 252½,	189	<i>Calydon W. Edw. Mel.</i>	126
Boopis Behr, Sat. 328 b.	157	<i>Camerta Cr. Pap.</i> 302,	149
<i>Bootes Bdl.</i> Ch. 317,	153	<i>Camertus Hbst. Pap.</i> 302,	149
Boothii Curt. Col. 63,	84	<i>Camillus W. Edw. Phy.</i> 233 a.	121
<i>Boothii Bdl.</i> Col. 62,	83	<i>Campestris Bdl. Pam.</i> 353 a.	164
Bore Esp. (Pap.)	154	<i>Campestris Behr.</i> Mel. 233,	121
<i>Bore Scud.</i> Ch. 317,	154	<i>Canace W. Edw.</i> Mel. 228,	119
<i>Bore var. Stgr. Ctn.</i> 317,	154	<i>Canthus Bdl.-L. Par.</i> 329,	159
Borealis G.-R. Cha. 175,	105	<i>Carduelis Seba, Pap.</i> 272,	137
<i>Borealis Gr. Gan.</i> 26 c.	75	<i>Cardui L. Pyr.</i> 272,	136, 190
<i>Borus Bdl.</i> Th. 99,	88	<i>Cardui var. H-S. Van.</i> 272 a.	137
<i>Bracteolata But.</i> Call. 47,	79	<i>Cardui virgin. Dru. Pap.</i> 274,	138
<i>Brassicæ Rath.</i> Pont. 26,	184	<i>C-Argenteum Kby. Grap.</i> 266,	132
Bredowii Hub. Lin. 292,	145	<i>C-Argenteum Scud. Grap.</i> 265 a.	131
Bremnerii W. Edw. Arg. 204,	112	<i>Carinenta Cr. Lib.</i> 178,	105, 187
Brenda W. Edw. Coen. 335,	160	<i>Carlota Reak. Eres.</i> 237,	122
Brettus Bdl.-L. Pam. 359,	165	<i>Caroliniana Pet. Pap.</i> 52,	80
Brevicauda Saun. Pap. 17 a.	71	<i>Carpenterii W. Edw.</i> Arg. 195,	111
Brizo Bdl.-L. Nis. 440,	179	CARTEROCEPHALUS LED.	175
<i>Bucephalus Steph.</i> Pam. 354,	164	<i>Carye Hub. Pyr.</i> 273,	138
Bulenta Bdl.-L. Pam. 387,	170	<i>Cassioides Bdl. Lyc.</i> 119,	92
C		<i>Cassioides Esp. Pap.</i> 306,	151
<i>Cadmus Cr. Pap.</i> 296,	147	<i>Cassius Butl. Lam.</i> 119,	92
Caeneus L. Cha. 174,	104	<i>Cassius var. Mor.</i> Lyc. 120,	92
<i>Caenius G.-R. Cha.</i> 174,	105	<i>Casta Kby. Pont.</i> 26 b.	75
Cæsonia Stoll. Meg. 52,	80	<i>Castalis W. Edw. Th.</i> 102,	89
Cæspitalis Bdl. Pyrg. 426,	176	<i>Castoria Reak.</i> Pier. 26 a.	74
<i>Cajona Reak.</i> Lyc. 128,	94	<i>Castro Reak. Poly.</i> 162,	102
<i>Calais Scud.</i> Ch. 317,	154	<i>Catalina Reak.</i> Lyc. 138,	96
<i>Calanus G.-R. Th.</i> 98,	88	<i>Catena Stgr. Pam.</i> 371 a.	168
<i>Calanus Hub. Th.</i> 89,	87	<i>Catillus Cr. Pap.</i> 444,	179

	Page		Page
Cattena M.-D. Pam. 371 a.	191	Clara H. Edw. Lyc. 153,	100
Catullus Fab. Nis. 444,	179	<i>Clarius</i> Bdl. Parn. 21,	73
<i>Caudatus Carolinians</i> Cat. Pap. 5,	181	<i>Clarus</i> Cr. Pap. 340,	162
<i>Caudatus</i> Mar. etc. Cat. Pap. 10,	182	Claudia Cr. Eup. 187,	109, 188
<i>C-Aureum</i> Cr. Pap. 259 a.	127	<i>Clausius</i> Hbst. Pap. 187,	109
<i>C-Aureum</i> Sh.-Nod. Pap. 259,	189	<i>Cleo</i> Hub. Pap. 306,	151
Cecrops Fab. Th. 84,	86, 185	<i>Cleomes</i> Bdl.-L. Pier. 29,	76
<i>Celimene</i> Cr. Pap.	156	Clio W. Edw. Arg. 212,	115
Cellus Bdl.-L. Eud. 341,	162	Clodius Men. Parn. 21,	73, 183
Celtis Bdl.-L. Ap. 293,	145, 190	Clorinde God. Gon. 50,	80
<i>Celtis</i> var. Strk. Ap. 293 d.	190	Clymena Cr. Call. 280,	140, 190
Ceneus L. Ch. 174,	186	<i>Clymenus</i> Fab. Pap. 280,	140
Centaureæ Ram. Pyr. 424,	176	Clytie W. Edw. Th. 84½,	185
CERATINIA FAB.	107	Clyton Bdl.-L. Ap. 294,	146
<i>Cereæ</i> Hub. Pol. 174,	104	<i>Clyton</i> var. W. Edw. Ap. 294,	146
Ceres Butl. Coen. 330 b.	159	<i>Cnidia</i> God. Col. 45,	78
<i>Cereus</i> Dbl. Cha. 174,	104	<i>Coeyta</i> Cr. Pap. 231, 231 a.	120
Cernes Bdl.-L. Pam. 382,	169	Cœnia Hub. Jun. 275,	138, 190
<i>Cernes</i> Har. Hesp. 383,	170	COENONYMPHA HUB.	159, 191
Cervantes Grasl. Nis. 442,	179	Cofaqui Strk. Æg. 352,	164, 191
Cethura Feld. Anth. 40,	78	COLLENIS HUB.	108, 187
<i>Chalcas</i> Fab. Pap. 19,	73, 183	COLIAS FAB.	80, 185
Chalcedona Dbl.-H. Mel. 248,	125	<i>Collina</i> Behr, Mel. 235,	122
<i>Chalcedon</i> W. Edw. Mel. 248,	125	<i>Colon</i> Fab. Pap.	164, 165
<i>Chalcis</i> Behr, Th. 96,	88	<i>Colorado</i> Scud. Pam. 371,	168
<i>Chalcus</i> Fab. Pap. 19,	183	Coloradensis Riley, Æg. 351 a.	191
Chariclea Sch. Arg. 217,	115, 188	Columbia H. Edw. Arg. 200,	112
<i>Charie</i> Blan. Van. 273,	138	Columbia W. Edw. Arg. 222½,	189
CHARIS HUB.	104, 186	Columbia Scud. Pam. 371 c.	168
Charithonia L. Hel. 183,	107, 187	<i>Columbina</i> Glor. Argyn. 187,	188
<i>Charitonia</i> Fab. Pap. 183,	107, 187	<i>Columbina</i> God. Arg. 187,	109
Charon W. Edw. Sat. 324,	156	<i>Columbina</i> Hbst. Pap. 188,	188
<i>Chemnis</i> Fab. Hesp. 406,	173	<i>Columbina</i> Fab. Pap. 188,	109
Chione Curt. Col. 63 a.	84	Columella Fab. Th. 105,	89
CHIONOBAS BDL.	152	<i>Comma alba</i> Mill. Van. 261,	130
Chiron Fab. Tim. 282,	141	Comma Har. Van. 260,	129
<i>Chironias</i> Hub. Mar. 282,	141	Comma L. Pam. 371,	167, 191
<i>Chippewa</i> W. Edw. Col. 53,	81	<i>Communis</i> Gr. Syr. 423,	176
Chlorodice Hub. Pier. 33,	76, 184	Comus W. Edw. Pam. 409,	174
<i>Chlymene</i> Hub. Naj. hil. 280,	190	Comyntas God. Lyc. 117,	92
Christina W. Edw. Col. 54 b	81	<i>Comyntas</i> var. Kby. Cup. 118,	92
<i>Chricus</i> Pack. Ch. 318,	154	<i>Conspicua</i> W. Edw. Hesp. 381,	169
<i>Chrysalus</i> Scud. Hyp. 78,	86	<i>Cooperi</i> Behr, Anth. 40,	78
<i>Chrysomelus</i> H. Edw. Col. 58 e.	82	<i>Cooperi</i> Behr, Mel. 247,	125
<i>Chrysophanus</i> Hub.	100	Coresia God. Tim. 283,	141
Chrysotheme Esp. Col. 60,	83	<i>Coruelius</i> God. Sat. 304,	150
<i>Chrysotheme</i> Fitch. Col. 58,	82	Coronis Behr, Arg. 202,	112
<i>Chrysotheme</i> var. Bdl. Col. 60 a.	83	<i>Costalis</i> Dbl.-H. Nis. 431,	177
Chryxus Dbl.-H. Ch. 318,	154	Couperi Grote, Lyc. 140,	96
Chusea W. Edw. Pam. 365,	166	Crambis Fr. Ch. 316.	153
<i>Cilla</i> Behr, Lyc. 149,	100	<i>Cramerii</i> Scud. Grap. 259 a.	128
<i>Cillene</i> Cr. Pap. 185,	108	<i>Cratagi</i> Bdl.-L. Poly. 169,	103
<i>Cillene</i> Hbst. Pap. 185,	187	Cresphontes Cr. Pap. 7,	69, 181
<i>Cincta</i> W. Edw. Eres. 224,	119	Creusa Dbl.-H. Anth. 36,	77
Cipris Fab. Call. 47,	79, 185	Crocale W. Edw. Syn. 257,	127

	Page		Page
EUDAMUS SWAINS.	161, 191	<i>Franklinii</i> Curt. Lyc.	150, 100
<i>Eufala</i> W. Edw. Hesp.	408, 173	Freija Thn. Arg.	218, 116, 188
<i>Eulalia</i> Dbl.-H. Lim.	292, 145	<i>Freja</i> H-S. Brcn.	218, 116
EUMÆUS HUB.	103, 186	Frigga Thn. Arg.	220, 117, 189
EUNICA HUB.	140	Frigida Scud. Pier.	26 c. 75
EUPTOIETA DBLDY.	109, 188	Frisia Poey, Mel.	226, 119
EUREMA DBLDY.	127	<i>Fuliginosa</i> Strk. Lyc.	145, 98
<i>Eurema</i> Hub.	84	<i>Fuliginosa</i> W. Edw. Th.	110, 90
<i>Europomene</i> Esp. Pap.	53, 80	Fulla W. Edw. Lyc.	145, 97
<i>Europome</i> Stph. Col.	58, 82	Fulvoscens H. Edw. Th.	96 a. 186
<i>Eurycles</i> Latr. Hesp.	338, 161	Funeralis Scud.-B.	435, 178
Eurydice Bdl. Meg.	51, 80, 185	<i>Furcillata</i> Say, Van.	269, 133
<i>Eurydice</i> L. Pap.	329, 159	Fusca G.-R. Pam.	412, 174
<i>Eurydice</i> Scud. Arg.	329, 159		
Eurymedon Bdl. Pap.	12, 70	G	
Eurynome W. Edw. Arg.	209, 114	Gabbii Behr, Mel.	240 b. 123
Eurytheme Bdl. Col.	60 a. 83	Gabbii W. Edw. Sat.	328 c. 157
<i>Eurythris</i> God. Sat.	300, 149	<i>Galactina</i> Mor. Coen.	330 a. 159
<i>Eurytion</i> W. Edw. Mel.	126	Galactinus Bdl. Sat.	330 a. 159
<i>Eurytris</i> Fab. Pap.	300, 149	<i>G album</i> Fourc. Pap.	261, 130
<i>Eurytulus</i> Hub. Tmo.	105, 89	<i>Gammæ</i> , Enc. Meth. Pap.	261, 189
Eurytus, ab. Neo.	300 a. 149	<i>Gardetta</i> DeL. Pap.	333, 160
Eurytus Fab. Neo.	300, 148	Garita Reak. Anc.	420, 175
Eversmanni Men. Parn.	22, 73, 183	Gemma Hub. Neo.	304, 150
Evius Bdl. Lyc.	144 a. 97	<i>Geniguch</i> Reak. Eres.	223, 119
<i>Exile</i> Scud. Brep.	121, 92	Genutia Fab. Anth.	38, 77
Exilis Bdl. Lyc.	121, 92	<i>Gigas</i> Butl. Cen.	320, 155
F		<i>Gilippus</i> Ab.-S. Pap.	180, 107
<i>Fabricii</i> Kby. Th.	98, 88	<i>Gilippus</i> var. Kby. Dan.	180 a. 107
<i>Fabricii</i> var. W. Edw. Grap.	259, 127	<i>Glaucus</i> W. Edw. Lyc.	131, 94
<i>Fabricii</i> W. Edw. Grap.	259, 127	Glaucus Lin. Pap.	10 a. 70
<i>Falacer</i> God. Poly.	89, 87	<i>Glycerium</i> Riley, Paph.	297, 148
<i>Falacer</i> Har. Th.	98, 88	<i>Godarti</i> Perty. Col.	50, 80
Fasciata Butl. Ereb.	313, 152	GONEPTERYX LEACH,	79. 185
Fasciata Strk. Lyc.	158 a. 101	<i>Goniloba</i> Westw.	161
<i>Faunus</i> Scud. Grap.	265 a. 131	<i>Goniurus</i> Westw.	161
<i>Faunus</i> W. Edw. Grap.	261, 130	<i>Goniurus</i> Hub.	161
Favonius Ab.-S. Th.	86, 87	Gorgon Bdl. Lyc.	165, 102
<i>Favonius</i> Bdl.-L. Th.	83, 86	<i>Gorgone</i> H-S. Eres.	231, 120
<i>Fea</i> W. Edw. Lyc.	121, 92	Gracilis G.-R. Van.	265 a. 131, 189
<i>Felicia</i> Poey, Nat.	44, 78	<i>Grapta</i> Kirby,	127
FENISECA GROTE,	103, 186	<i>Grogne</i> Fab. Pap.	266, 132
Feronia L. Ag.	277, 139	Grunus Bdl. Th.	80, 86
<i>Festus</i> Hub. Cec.	341, 162	<i>Gryneus</i> Hub. Lyc.	102, 89
<i>Filenus</i> Poey, Poly.	123, 93	Guadeloupe Strk. Ch.	176½, 187
Flava Col. ab.	60 c. 83	Gundlachia Poey, Ter.	70, 85
Flava Ter. ab.	68 a. 84	<i>Gyas</i> W. Edw. Lyc.	125, 93
<i>Flavomaculatus</i> Goz. Pap.	19, 183	<i>Gyges</i> Hew. Eres.	226, 119
Flora W. Edw. Ag.	294 c. 146		
Floridensis Strk. Lim.	287 a. 143	H	
<i>Floridensis</i> , var. Mor.	Lyc. 120, 92	Halcyone W. Edw. Arg.	197, 112
Fornax Hub. Ag.	278, 140	Halesus Cr. Th.	81, 86, 185
<i>Fortunatus</i> Fab. Pap.	154	<i>Hanno</i> Luc. Lyc.	123, 93
Fotis Strk. Th.	113½, 186	<i>Hanno</i> Hub. Rust. Ad.	123, 93
		Harfordii H. Edw.	60 f. 83

	Page		Page
<i>Havisii</i> W. Edw. Grap. 260,	129	I	
<i>Harrisii</i> Scud. Mel. 238,	123	<i>Ianthe</i> W. Edw. Chr. 163,	102
<i>Harrisii</i> W. Edw. Mel. 236,	122	<i>Iberidis</i> Bdl. Pier. 26 a.	74
<i>Haydenii</i> W. Edw. Er. 309, 151,	190	<i>Icarioides</i> Bdl. Lyc. 147,	98
<i>Hayhurstii</i> W. Edw. Nis. 445,	179	<i>Icelus</i> Lint. Nis. 441,	179
<i>Hecla</i> Lef. Col. 62,	83	<i>Idalia</i> Dru. Arg. 190,	109, 188
<i>Hegesia</i> Cr. Eup. 188,	109, 188	<i>Iduna</i> W. Edw. Ch. 320,	155
<i>Hegon</i> Scud. Hesp. 411,	174	<i>Idyja</i> Kby. Ap. 294,	146
<i>Helcita</i> Bdl. Mel. 240 a.	123	<i>Illinois</i> Dod. Hesp. 385,	170
<i>Helena</i> Reak. Meg. 51,	80	<i>Ilioneus</i> Ab.-S. Pap. 18,	72
<i>Helena</i> W. Edw. Arg. 216,	115	<i>Imitata</i> Strk. Mel. 2304,	189
<i>Helena</i> W. Edw. Col. 53,	81	<i>Improba</i> Butl. Arg. 222,	118
HELICONIDÆ,	107	<i>Indra</i> Reak. Pap. 15,	71
HELICONIUS LATR.	107, 187	<i>Inornata</i> G.-R. Th. 89,	87
<i>Helicta</i> Hub. Or. fim. 303,	150	<i>Inornata</i> var. Kby. Coen. 331,	160
<i>Helios</i> W. Edw. Lyc. 144 a.	97	<i>Inornata</i> W. Edw. Arg. 207,	113
<i>Helioides</i> Bdl. Lyc. 162,	102	<i>Inornata</i> W. Edw. Coen. 331,	160
<i>Helvia</i> Scud. Mel. 245,	124	<i>Interior</i> Scud. Col. 54 a.	81
<i>Henrici</i> G.-R. Th. 112 b.	91	<i>Intermedia</i> ab. Lyc. 136 b.	95
<i>Henshawii</i> W. Edw. Neo. 305,	151	<i>Interrogationis</i> Fab. Van. 259,	127
<i>Hermas</i> Hew. Mel. 223,	119	<i>Interrogationis</i> God. Van. 259 a.	128
<i>Hermes</i> W. Edw. Lyc. 166,	102	<i>Interrogationis</i> var. W. Edw.	
<i>Herse</i> Brk. Pap. 306,	151	Grap. 259,	127
<i>Herse</i> Fab. Pap. 294,	146	<i>Iole</i> Bdl. Nat. 44,	78
<i>Hersilia</i> Cr. Pap. 45.	78	<i>Iole</i> Cr. Pap. 274,	138
HESPERIDÆ,	161	<i>Iortlandia</i> Fab. Pap. 299,	148
<i>Hesperis</i> W. Edw. Arg. 206,	113	<i>Iowa</i> Scud. Pam. 403,	173
<i>Hesus</i> Dbl.-H. Eud. 345,	163	<i>Irene</i> Bdl. Arg. 208 a.	113
<i>Heteronea</i> Bdl. Lyc. 154,	100	<i>Irene</i> Fitch, Nat. 44,	78
<i>Hianna</i> Scud. Pam. 396,	171	<i>Irene</i> Scud. Arg. 208 a.	114
<i>Hippocrates</i> Pap. 14,	183	<i>Iris</i> Mor. Th. 112,	91
<i>Hippomonuste</i> Hub. Myl. 29,	76	<i>Iroides</i> Bdl. Th. 113,	91
<i>Hobomok</i> Har. Pam. 399,	172	<i>Irus</i> God. Th. 112,	91
<i>Hoffmanni</i> Strk. Sat. 328 f.	158	<i>Ismeria</i> Bdl.-L. Mel. 237.	122
<i>Hoffmanni</i> Behr. Mel. 240 c.	124	<i>Ismeria</i> Har. Mel. 238,	123
<i>Horatius</i> Scud.-B. Nis. 431,	177	<i>Isola</i> Reak. Lyc. 125,	93
<i>Hortensia</i> Bl. Arg. 188,	109	<i>Isopthalma</i> H.-S. Lyc. 122,	92
<i>Horus</i> W. Edw. Pam. 394,	171	<i>Ixion</i> Fab. Hesp. 92,	185
<i>Hugo</i> Dbl.-H. Th. 85,	87	J	
<i>Hugon</i> God. Th. 85,	87	<i>J album</i> Bdl.-L. Van. 267,	132
<i>Hulda</i> W. Edw. Pier. 26 d.	75	<i>Janais</i> Dru. Syn. 255,	126
<i>Humuli</i> Har. Th. 83,	86	<i>Jatrophæ</i> L. 276,	139
<i>Huntera</i> Fab. Pyr. 274,	138, 190	<i>Juanita</i> Scud. Th. 81,	86
<i>Hunteri</i> Hub. Van. 274,	138	<i>Juba</i> Scud. Pam. 371 b.	168
<i>Huron</i> W. Edw. Pam. 353,	164	<i>Jucunda</i> Bdl.-L. Ter. 77,	85
<i>Huttuinus</i> Goez. Pap. 190,	188	<i>Julia</i> W. Edw. Anth. 41,	78
<i>Hyantis</i> W. Edw. Anth. 36,	77	<i>Julia</i> Fab. Col. 184,	108, 187
<i>Hybrida</i> Col. 58 d.	82	JUNONIA HUB.	138, 190
<i>Hydaspe</i> Bdl. Arg. 208,	113	<i>Jutta</i> Hub. Ch. 314,	152
<i>Hygiea</i> Hdr. Van. 270 a.	134	<i>Juvenalis</i> Fab. Nis. 431,	177
<i>Hylas</i> W. Edw. Van. 261 a.	130	<i>Juvenis</i> Hub. Nis. 431,	177
<i>Hylax</i> W. Edw. Anc. 420 a.	175	K	
<i>Hyperici</i> Bdl.-L. Th. 83,	86	<i>Kali</i> Strk. Th. 101½,	186
<i>Hyperipte</i> Hub. Eun. 279,	140	<i>Keewaydin</i> W. Edw. Col. 60 d.	83
<i>Hypophlæas</i> Bdl. Poly. 158,	101		

	Page		Page
Kiowah Reak. Pam. 389,	171	<i>Inteus</i> Goetz. Pap. 184,	187
Kodiak Kby. Coen. 336,	160	LYCÆNA FAB.	91, 186
Kodiak W. Edw. Coen. 336,	160	LYCÆNIDÆ,	85
Kodiak W. Edw. Lye. 147,	98	<i>Lycæon</i> Fab. Pap. 293,	145
KRICOGONIA REAK.	79	<i>Lycaste</i> Fab. Cer. 181,	107
L		<i>Lycæa</i> W. Edw. Lye. 147,	98
<i>Labradorensis</i> Scud. Col. 54,	81	<i>Lyciades</i> Hub. Prot. 339,	161
<i>Lacinia</i> W. Edw. Syn. 253,	126	<i>Lycidas</i> Ab.-S. Eud. 339,	161
<i>Læta</i> W. Edw. Th. 108,	90	<i>Lydia</i> Feld. Ter. 74,	85
<i>L Album</i> Esp. Pap. 267,	132	<i>Lygdamus</i> Dbl. Lye. 139,	96
<i>Lamina</i> Fab. Pap. 289,	144	<i>Lyside</i> God. Kric. 48,	79
<i>Lanceolata</i> Bdl. Anth. 37,	77	M	
<i>Lapponica</i> Kby. Arg. 218,	116	<i>Macaria</i> W. Edw. Arg. 222½,	189
<i>Lapponica</i> Stgr. Col. 53,	81	<i>Machaon</i> L. Pap. 13,	70, 182
<i>L-Argenteum</i> Scud. Van. 266 a.	132	<i>Maculata</i> W. Edw. Pam. 407,	173
<i>Larvinia</i> God. Van. 275,	139	<i>Mæcula</i> Fab. Gon. 49,	79, 185
<i>Larra</i> Fab. Pap. 45,	78	<i>Mæcula</i> Hub. Ant. 50,	80
<i>Larunda</i> Strk. Mel. 230½,	189	<i>Major Caudatus</i> Pet. Pap. 13,	182
<i>Larvata</i> Strk. Lib. 178½,	187	<i>M-Album</i> Bdl.-L. Th. 82,	86
<i>Laurentina</i> Scud. Col. 54 a.	81	<i>Manatuaqua</i> Scud. Pam. 383,	170
<i>Larvinia</i> Cr. Pap. 275,	139	<i>Mancinus</i> Dbl.-H. Sat. 310,	191
<i>Lavinia</i> Fab. Pap. 286,	142	<i>Mancinus</i> H.-S. Ery. 347,	163
<i>Lavinia</i> Har. Cyn. 275,	139	<i>Mancinus</i> var. Dbl.-H. Ereth. 311,	152
<i>Leanira</i> Bdl. Mel. 250,	125	<i>Mandan</i> W. Edw. Car. 421,	175
<i>Leilia</i> W. Edw. Ap. 293 c.	146	<i>Maniola</i> Schrck.	151
LEMONIAS WEST.	104	<i>Manitoba</i> Scud. Pam. 371,	168
<i>Leonardus</i> Har. Pam. 379,	169	<i>Marcellina</i> Cr. Pap. 46,	79
LEPTALIS DALM.	73, 183	<i>Marcellina</i> Hbst. Pap. 46,	185
<i>Lethe</i> Fab. Eur. 258,	127	<i>Marcellus</i> Bdl.-L. Pap. 5 c.	68
<i>Leto</i> Behr, Arg. 193 b.	111	<i>Marcellus</i> Goetz. Pap. 5,	181
<i>L'herminieri</i> God. Pier. 38,	77	<i>Marcia</i> W. Edw. Mel. 231 a.	120
<i>Libya</i> Scud. Anc. 420½,	192	<i>Marginalis</i> Scud. Pier. 28,	75
LIBYTHEA FAB.	105, 187	<i>Marginatus</i> Har. Het. 419,	175
LIBYTHEIDÆ,	105	<i>Maricopa</i> Reak. Lye. 147 a.	98
<i>Licinus</i> W. Edw. Pam. 375,	169	<i>Marina</i> Reak. Lye. 119,	92
<i>Liliana</i> H. Edw. Arg. 201,	112	<i>Mariposa</i> Reak. Lye. 161,	101
LIMENITIS FAB.	142, 190	<i>Marius</i> Cr. Pap. 282,	141
<i>Lintnerii</i> Fitch, Van. 270 a.	134	<i>Mars</i> Fab. Pap. 92,	88
<i>Liparops</i> Bdl.-L. Th. 91,	87	<i>Marsyas</i> W. Edw. Van. 262 a.	131
<i>Lisa</i> Bdl.-L. Ter. 76,	85	<i>Martialis</i> Scud. Nis. 438,	178
<i>Lividus</i> Hub. Pol. 344,	163	<i>Massasoit</i> Scud. Pam. 400,	172
<i>Loammi</i> Whit. Pam. 391½,	191	<i>Mata</i> Reak. Mel. 233 b.	121
<i>Logan</i> W. Edw. Hesp. 397,	172	<i>Meadii</i> W. Edw. Arg. 191 b.	110
<i>Lorquini</i> Bdl. Lim. 291,	145, 190	<i>Meadii</i> W. Edw. Col. 61,	83
<i>Lorquini</i> Bdl. Rhod. 51,	80	<i>Meadii</i> W. Edw. Sat. 326,	156
<i>Lorquini</i> Behr, Lye. 138,	96	MECHANITIS FAB.	107
<i>Lorata</i> G.-R. Th. 89 a.	87	<i>Mediatrix</i> Feld. Syn. 254,	126
<i>Lucia</i> Kby. Cyp. 136,	95	<i>Megatippe</i> Hub. An. 179,	106
<i>Lucia</i> Kby. Lye. 136,	95, 186	MEGANOSTOMA REAK.	80, 185
<i>Lucia</i> Scud. Cy. 136,	95	<i>Megathymus</i> Scud.	163
<i>Lucia</i> var. Mead, Lye. 136,	95	MEGISTANIS WESTW.	147
<i>Lucillus</i> Lint. Nis. 437 a.	178	<i>Melaue</i> W. Edw. Pam. 402,	172
<i>Lupini</i> Bdl. Lye. 134,	95	<i>Meleager</i> Hub. Pap. 149,	99
<i>Luteolus</i> Reak. Nat. 44,	78	<i>Melicerta</i> Brk. Pap. 366,	167

	Page		Page
Melinus Hub. Th. 83,	86	Mylotes Bates, Pap. 4,	68
<i>Melinus</i> var. <i>H. Edw.</i> Th. 83,	86	Myrina Cr. Arg. 214,	115, 188
<i>Melissa</i> Fab. Pap.	154	<i>Myrina</i> Mart. Pap. 221,	117
Melissa W. Edw. Lyc. 127,	93	<i>Myrinus</i> Hbst. Pap. 214,	115
MELITÆA FAB.	119, 189	<i>Myrissa</i> God. Arg. 214,	115
Melite L. Lep. 23,	73, 183	<i>Myrta</i> God. ? Nym. 279,	140
<i>Menaleus</i> Pod. Pap. 333,	160	Mystic W. Edw. Pam. 361,	165
Menapia Feld. Neoph. 24,	74, 183		
Menetriesii H. Edw. Parn. 21,	183	N	
<i>Menippe</i> Hub. An. 179,	106	Napa W. Edw. Pam. 355,	165
<i>Mertila</i> W. Edw. Lyc. 141,	97	Napi Lin. Pier. 26,	74, 184
<i>Mesopano</i> Scud. Hesp. 421,	175	Nastes Bdl. Col. 64,	84
Meskei W. Edw. Pam. 378,	169	<i>Nastes</i> Fitch, Col. 58,	82
Metacomet Har. Pam. 388,	171	<i>Nasturtii</i> Bdl. Pier. 26,	74
Metae Scud. Pam. 376,	169	NATHALIS BDL.	78
Mexicana Bdl. Ter. 71,	85, 185	Nausica W. Edw. Arg. 199,	112
<i>Midea</i> Hub. Man. var. 38,	77	<i>Neglecta</i> Kby. Cup. 135,	95
Milberti God. Van. 269,	133	<i>Neglecta</i> W. Edw. Lyc. 135,	95
<i>Milbertii</i> Pack. Van. 269,	133	Negreta var. Reak. Cer. 181 a.	107
<i>Mincha</i> Kby. Pleb. 147 a.	99	<i>Nelus</i> Fr. Hip. 306,	151
<i>Mingo</i> W. Edw. Hesp. 422,	175	Nelsoni Bdl. Th. 101,	89
<i>Minijas</i> Bdl. Eum. 171,	103	Nemesis W. Edw. Cha. 176,	105
<i>Minima</i> W. Edw. Hesp. 417 a.	175	<i>Nemoris</i> W. Edw. Hesp. 411,	174
<i>Minnehaha</i> Scud. Agr. 134,	95	Nemorum Bdl. Pam. 363,	166
<i>Minor ex aureo</i> etc. Pet. Pap. 366,	167	<i>Nenoquis</i> Kby. Arg. 208 b.	114
<i>Mintha</i> W. Edw. Lyc. 147 a.	99	<i>Nenoquis</i> Reak. Arg.	118
Minuta W. Edw. Mel. 239,	123	<i>Neocypris</i> Hub. Col. 47,	79
Minyas Hub. Eum. 171,	103	NEONYMPHA HUB.	148
Misippus L. Lim. 287,	142	NEOPHASIA BEHR,	74, 183
<i>Modesta</i> Bates, Eun. 279,	140	<i>Nephele</i> Hufn. Pap. 333,	160
<i>Modesta</i> Mayn. Lyc. 105,	89	Nephele Kby. Sat. 328,	157
Monica Reak. Lyc. 116,	91	<i>Nephon</i> Bdl.-H. Th. 111,	90
Monica Cr. Eun. 279,	140	Nereus W. Edw. Pam. 414,	174
<i>Monoco</i> Scud. Hesp. 391,	171	Nessus W. Edw. Nis. 448,	179
Montana Behr, Mel. 234,	121	<i>Nestos</i> Bdl. Lyc. 149,	100
Monticola Behr, Arg. 205,	112	<i>Nevada</i> Scud. Pam. 371,	168
Montinus Scud. Arg. 217 b.	116	<i>Nevada</i> Scud. Thor. 343 a.	163
Montivago Behr, Arg. 208 c.	114	Nevadensis Bdl. Ch. 320,	154
<i>Montivago</i> Kby. Arg. 208 a.	113	Nevadensis W. Edw. Arg. 191 a.	110
<i>Montivago</i> W. Edw. Arg. 208 b.	114	Nicippe Cr. Ter. 68,	84
<i>Monusta</i> Cr. Pap. 29,	76	Nig. ab. Ap. 294 b.	146
Monuste Lin. Pier. 29,	76	Nig. ab. Lim. 287 b.	143
<i>Mopsus</i> Hub. Str. 109,	90	Nig. ab. Lyc. 136 a.	95
Morio Enc. Meth. Pap. 270,	189	Nig. Col. ab. 58 b.	82
<i>Morio</i> L. Pup. 270,	134	<i>Nigromarginatus</i> Goetz. Pap. 184,	187
Mormo Feld. Ap. 172,	104	<i>Nigrosignatus</i> Goetz. Pap. 187,	188
Mormonia Bdl. Arg. 208 b.	114	Nilus W. Edw. Pam. 416½,	192
<i>Mormonia</i> Bdl. Chry. 172,	104	<i>Ninonia</i> Bdl. Pier. 24,	74
<i>Morphea</i> God. Arg. 231,	120	Ninus W. Edw. Th. 93,	88
<i>Morpheus</i> Fab. Pap. 231,	120, 189	Niphon Hub. Th. 111,	90
<i>Morphius</i> Fab. Pap. 231,	189	NISONIADES HUB.	177
<i>Morrisii</i> Reak. Arg.	118	Nitocris W. Edw. Arg. 194,	111
Morrisoni W. Edw. Pam. 371½,	191	<i>Nivalis</i> Bdl. Poly. 161,	101
<i>Motya</i> var. Kby. Lib. 177,	105	<i>Nivium</i> Bdl. Lyc. 132,	94
Mylitta W. Edw. Mel. 235,	122	Nokomis W. Edw. Arg. 192,	110

	Page		Page
<i>Norna Quen. Pap.</i>	154	<i>Orphise Cr. Pap.</i>	279, 140
<i>Norna var. Ochs. Pap.</i>	314, 152	<i>Orsa Bdl. Mel.</i>	234, 122
<i>Nortonii W. Edw. Hesp.</i>	391, 171	<i>Orseis God. Pier.</i>	29, 76
<i>Notabilis Strk. Spil.</i>	430, 177	<i>Orseis W. Edw. Mel.</i>	233 c, 121
<i>Novanglie Scud. Pier.</i>	28 a, 76, 184	<i>Orythia Ab.-S. Pap.</i>	275, 139
<i>Nubigena Behr. Mel.</i>	244 a, 124	<i>Osceola Lint. Pam.</i>	390, 171
<i>Numitor Fab. Anc.</i>	419, 175	<i>Oskya W. Edw. Pam.</i>	408, 173
<i>Nycteis Dbl.-H. Mel.</i>	236, 122	<i>Ossianus Bdl. Arg.</i>	215, 115
<i>Nycteis W. Edw. Mel.</i>	237, 122	<i>Otho Ab.-S. Pam.</i>	384, 170
<i>Nyctis Bdl. Mel.</i>	236, 122	<i>Otho Bdl.-L. Hesp.</i>	384 a, 170
NYMPHALIDÆ,	108	<i>Ottoe W. Edw. Pam.</i>	357, 165
<i>Nysa W. Edw. Amb.</i>	416, 191	<i>Ovidius Scud.-B. Nis.</i>	431, 177
O		<i>Oxilus Hub. Her.</i>	7, 69
<i>Obsoleta H. Edw. Mel.</i>	250 a, 125	P	
<i>Occidentalis Reak. Pier.</i>	31, 76	<i>Paekardii Saund. Mel.</i>	231 b, 120
<i>Occidentalis Scud. Col.</i>	58 e, 82	<i>Pacuvius Lint. Nis.</i>	436, 178
<i>Oceanus W. Edw. Pyrg.</i>	429, 177	<i>Palano Cr. Pap.</i>	58, 82
<i>Ocellata var. W. Edw. Ap.</i>	294, 146	<i>Pakeno L. Col.</i>	53, 80, 185
<i>Ocellifera Grote, Call.</i>	105, 90	<i>Palamedes Dru. Pap.</i>	19, 73, 183
<i>Ochracea W. Edw. Coen.</i>	334, 160, 191	<i>Palatka Scud. Lin.</i>	387, 171
<i>Ocola W. Edw. Pam.</i>	405, 173	<i>Palla Bdl. Mel.</i>	240, 123
<i>Odia Hub. His.</i>	295, 147	<i>Pallida Scud. Pier.</i>	26 a, 74
<i>Odius Fab. Pap.</i>	295, 147	<i>Pallida W. Edw. Mel.</i>	233 a, 121
<i>Eneis Hub.</i>	152	<i>Pallideflarus Goez. Pap.</i>	45, 78
<i>Oeno Bdl. Ch.</i>	315, 153	<i>Palmerii W. Edw. Lem.</i>	173, 104
<i>Oeno Scud. Ch.</i>	316, 153	<i>Palmira Poey, Ter.</i>	74, 85
<i>Oeno var. Kby. En.</i>	316, 153	PAMPHILA FAB.	164, 191
<i>Oenone Scud. Mel.</i>	236, 122	<i>Pamphiloides Reak. Coen.</i>	333, 160
<i>Oetus Bdl. Sat.</i>	325, 156	<i>Pamphiloides var. Kby. Coen.</i>	333, 160
<i>Oetus Scud. Cer.</i>	324, 156	<i>Pamphilus var. Kby. Coen.</i>	333, 160
<i>Oileus W.-H. Pyr.</i>	423, 176	<i>Pamphilus L. Coen.</i>	333, 160
<i>Oleracea Bdl. Pier.</i>	26 c, 75	<i>Pan Har Th.</i>	83, 86
<i>Oleracea Har. Pier.</i>	26 b, 75	<i>Panoquin Scud. Pam.</i>	404, 173
<i>Olympia W. Edw. Anth.</i>	42, 78	PAPHIA WESTW.	147
<i>Olynthus Bdl.-L. End.</i>	406, 173	PAPILIO L.	67
<i>Omaha W. Edw. Car.</i>	422, 175	PAPILIONIDÆ,	67
<i>Oneko Scud. Hesp.</i>	413, 174	PARARGE HUB.	159
<i>Ontario W. Edw. Th.</i>	94, 88	<i>Pardalis Behr, Lyc.</i>	147 a, 98
<i>Opis W. Edw. Arg.</i>	213 a, 115	PARNASSIUS LATR.	73, 183
<i>Ophis W. Edw. Hesp.</i>	404, 173	<i>Passaflore Fab. Pap.</i>	186, 108
<i>Optilete Kn. Lyc.</i>	130, 94, 186	<i>Pawnee Dod. Pam.</i>	370, 167
<i>Orbitulus DeP. Lyc.</i>	149, 99	<i>Peekii Mor. Pam.</i>	362, 166
<i>Orbitulus Scud. Agr.</i>	151, 100	<i>Peckius Kby. Pam.</i>	362, 166
<i>Orbitulus var. Kby. Cup.</i>	150, 100	<i>Pegula Fab. Sat.</i>	328 c, 158
<i>Orbitulus var. Styr. Lyc.</i>	150, 100	<i>Pegula Hbst. Pap.</i>	328 e, 158
<i>Orcus Cr. Pap.</i>	423, 176	<i>Peleus Sulz. Tim.</i>	285, 141, 190
<i>Orcus W. Edw. Lyc.</i>	144 c, 97	<i>Pelidne Bdl. Col.</i>	54, 81
<i>Oreas W. Edw. Van.</i>	263, 131	<i>Pelidne var. Strk. Col.</i>	54 a, 81
<i>Oregonia W. Edw. 14 a.</i>	183	<i>Pellenis God. Nym.</i>	284, 141
<i>Orestes Lint. End.</i>	342, 162	<i>Pembina W. Edw. Lyc.</i>	148, 99
<i>Origenes Fab. Pap.</i>	382, 170	<i>Pembina W. Edw. Lyc.</i>	140, 96
<i>Orion Fab. Ag.</i>	295, 146	<i>Pergamus H. Edw. Pap.</i>	16, 71
<i>Oro Scud. Lyc.</i>	139 a, 96	<i>Persius Scud. Nis.</i>	437, 178
<i>Orona Scud. Hed.</i>	381, 169	<i>Petreius W. Edw. Syr.</i>	425, 176

	Page		Page
<i>Petreus Enc. Meth. Pap.</i> 285,	190	<i>Powesheik Par. Hesp.</i> 420,	175
<i>Petrus Cr. Pap.</i> 285,	142	<i>Pratensis Behr, Mel.</i> 233,	121
<i>Phædon H-S. Mel.</i> 249,	125	<i>Pratensis Scud. Phyc.</i> 234,	122
<i>Phætaena Hub. Mel.</i> 249,	125	<i>Pratincola Bdl. Pam.</i> 369,	167
<i>Phæton Dru. Mel.</i> 249,	125, 189	<i>Procris W. Edw. Anc.</i> 417,	174
<i>Phætontea God. Arg.</i> 249,	125	<i>Progne Cr. Van.</i> 266,	132
<i>Phaon W. Edw. Mel.</i> 229,	120	PRONOPHILA WESTW.	148
<i>Pharos Emm. Mel.</i> 231,	120	<i>Propercius Scud.-B. Nis.</i> 433,	178
<i>Pherecydes Cr. Pap.</i> 296,	147	<i>Proserpina Scud. Ap.</i> 294 a.	146
<i>Pheres Bdl. Lyc.</i> 144,	97	<i>Proserpina W. Edw. Lim.</i> 289 a.	144
<i>Philemon Bdl. Lyc.</i> 128,	94	<i>Proterpia Fab. Ter.</i> 69,	84
<i>Philenor L. Pap.</i> 1,	67, 181	<i>Proterpia var. Bdl. Ter.</i> 70,	85
<i>Phileros Bdl. Lyc.</i> 144 a.	97	<i>Protesilaus Dru. Pap.</i> 6,	68
<i>Phileta Fab. Pier.</i> 29 a.	76	<i>Proteus L. Eud.</i> 337,	161
<i>Philete Bdl. Pier.</i> 29 a.	76	<i>Protodice Bdl.-L. Pier.</i> 30,	76, 184
<i>Phlæas var. D'U. Lyc.</i> 158,	101	<i>Pseudargiolus Bdl.-L. Lyc.</i> 135,	95
<i>Philodice God. Col.</i> 58,	82	<i>Pseudargiolus Kby. Cup.</i> 135,	95
<i>Philodice var. Scud. Col.</i> 54 a.	81	<i>Pseudargiolus var. Mead. Lyc.</i> 136,	95
<i>Philomene Hub. Pap.</i> 53,	80	<i>Pseudodorippus Strk. Lim.</i> 287 c.	143
<i>Phocion Fab. Neo.</i> 303,	149	<i>Pseudoptiletes Bdl.-L. Arg.</i> 123,	93
<i>Phocus W. Edw. Sat.</i> 327,	157	<i>Pseudofoea Mor. Lyc.</i> 122,	92
<i>Phyciodes Hub.</i>	119	<i>Psyche Bdl.-L. Th.</i> 82,	86
<i>Phylace W. Edw. Pam.</i> 408½,	191	<i>Pudica var. H. Edw. Th.</i> 83,	86
<i>Phylæus Dru. Pam.</i> 354,	164	<i>Puer Hub. Thy.</i> 419,	175
<i>Phylæus Emm. Pam.</i> 354,	164	<i>Pulehella Bdl. Mel.</i> 233,	121
<i>Piasus Bdl. Lyc.</i> 135 r	95	<i>Pulehella Scud. Phyc.</i> 235,	122
<i>Picta W. Edw. Mel.</i> 227,	119	<i>Pumila Bdl.-L. Nym.</i> 174,	104
PIERIDÆ,	73	<i>Punctata W. Edw. Mel.</i> 225,	119
PIERIS SCHR.	74, 184	<i>Punctella G.-R. Hesp.</i> 391,	171
<i>Pirus W. Edw. Nis.</i> 447,	179	<i>Purpurascens H. Edw. Arg.</i> 205 c.	113
<i>Pilalka Kby. Pam.</i> 387,	171	<i>Putnami H. Edw. Th.</i> 79,	86
<i>Pilatka W. Edw. Hesp.</i> 387,	170	<i>Pylades Scud. Eud.</i> 343 a.	162
<i>Pilumnus Bdl. Pap.</i> 8,	69	PYRAMEIS HUB.	135, 190
<i>Plautus Scud.-B. Nis.</i> 432,	178	PYRGUS HUB.	176
<i>Plexippus L. Dan.</i> 179,	105, 187	PYRRHOPYGE HUB.	163
<i>Plexippus ab. Dan.</i> 179 b.	106		
<i>Plexippus ab. Dan.</i> 179 d.	106		
<i>Plexippus var. Dan.</i> 179 a.	106		
<i>Plexippus var. Dan.</i> 179 c.	106		
<i>Pocahontas, Scud. Pam.</i> 399 b.	172		
<i>Podarce Feld. Lyc.</i> 149,	99		
<i>Pocæ Hub. Rust. ar.</i> 84,	87		
<i>Pola Bdl. Mel.</i> 240 a.	124		
<i>Polaris Bdl. Arg.</i> 219,	116		
<i>Polixenes Fab. Pap.</i>	154		
<i>Polychlorus Cr. Pap.</i> 267,	132		
<i>Polydamas L. Pap.</i> 3,	67, 181		
<i>Polyommatus Latr.</i>	91		
<i>Polyphemus Bdl. Lyc.</i> 142,	97		
<i>Polyxenes Fab. Pap.</i> 17,	71		
<i>Pompadour Poll. Pam.</i> 270,	134		
<i>Pontiac W. Edw. Pam.</i> 381,	169		
<i>Porsenna Scud. Poly.</i> 169,	103		
<i>Portlandia Fab. Deb.</i> 299,	148		
<i>Portlandia ab. Deb.</i> 299 a.	148		

Q

<i>Quadaquina Scud. Pam.</i> 399 a.	172
<i>Quino Behr, Mel.</i> 243,	124

R

<i>Rapæ Lin. Pier.</i> 28,	75, 184
<i>Rapahoe Reak. Lyc.</i> 147,	98
<i>Reakirtii W. Edw. Anth.</i> 39 a.	77
<i>Regia Bdl. Lyc.</i> 137,	96
<i>Reginæ Ret. Pap.</i> 13,	70
<i>Resida Bdl. Pier.</i> 26 a.	74
<i>Rhæa Bdl. Lyc.</i> 138,	96
<i>Rhena W. Edw. Pam.</i> 385½,	191
<i>Rhesus W. Edw. Pam.</i> 374½,	191
<i>Rhodia W. Edw. Ereab.</i> 308,	151
<i>Rhodope W. Edw. Arg.</i> 205 a.	113
<i>Ricara W. Edw. Pyrg.</i> 425,	176
<i>Ridingsii Reak. Pam.</i> 372,	168
<i>Ridingsii W. Edw. Sat.</i> 321,	156

	Page		Page
Rossii Curt. Ereb. 310,	152	Skada W. Edw. Cye. 421,	175
Rossii Gn. Col. 64 a.	84	Smerdis Hew. Eres. 224,	119
Rubida Scud. Ch. 156,	100	Smilacis Bdl.-L. Th. 102,	89
Rubidus ab. Lim. 288 b.	144	Smilax God. Pier. 76,	85
Rubidus Behr, Lyc. 156,	100	Smintheus Bdl.-H. Parn. 20, 73,	183
Rubricata W. Edw. Neo. 301,	149	Snowi W. Edw. Pam. 380,	169
Rufescens Bdl. Lyc. 146 a.	98	Sonora Scud. Och. 367,	167
Rupestris Behr, Arg. 208 d.	114	Sonorae Bdl. Mel. 240 b.	123
Ruralis Bdl. Syr. 424,	176	Sonorensis Feld. Ap. 172 a.	104
Ruralis Scud. Hesp. 425,	176	Sonorensis Feld. Lyc. 137,	96
Rurea W. Edw. Pam. 388,	171	Sosybius Fab. Neo. 302,	149
Ruricola Bdl. Pam. 368,	167	Souhegan Whit. Th. 99,	88
Russie Esp. (Pap. Dap. var.) 33,	77	Spadix H. Edw. Th. 106,	90
Rustica W. Edw. Lyc. 149,	99	Speciosa H. Edw. Lyc. 152,	100
Rusticus W. Edw. Van. 261 a.	131	Sphyrus Hub. Pap. (foot-note),	71
Rutulus Bdl. Pap. 11,	70, 182	SPILOTHYRUS DUP.	177
S		Spinetorum Bdl. Th. 104,	89
Sabuleti Bdl. Pam. 373,	168	Stelenes L. Vic. 286,	142
Sæpiolus Bdl. Lyc. 146,	98	Stenetes Blan. Vic. 286,	142
Sæpium Bdl. Th. 96,	88	Sterope W. Edw. Mel. 242,	124
Saga Kad. Arg. 220 a.	117	Sthenele Bdl. Sat. 322,	156
Sagittigera Feld. Lyc. 138,	96	Sthenele Hub. Met. 286,	142
Samoset Scud. Pam. 411,	174	Stretchii W. Edw. Ch. 321,	156
Sanguinea Scud. Ery. 349,	163	Striata W. Edw. Lyc. 125½,	186
Santes Fitch, Col. 58,	82	Strigosa Bates, Dan. 180 a.	107
Sara Bdl. Anth. 39,	77	Strigosa Har. Th. 91,	88
Sassacus Har. Pam. 360,	165	Suasa Bdl. Lyc. 110,	90
SATYRIDÆ,	148	Suasa Bdl. Pier. 29 a.	76
SATYRUS LATR.	156, 191	Subhyalina Curt. Hip. 316,	153
Satyrus W. Edw. Van. 262,	131	Superba Strk. Mel. 249 a.	125
Saundersii W. Edw. Syn. 254,	126	Suainsonia Swain. Am. Cy. 50,	80
Savignyi Latr. Hesp. 344,	163	Sylla Per. Pap. 283,	141
Sayii W. Edw. Parn. 20,	73	Sylvanoides Bdl. Pam. 367,	167
Scriptura Bdl. Pyrg. 427,	177	Sylvanoides Scud. Pam. 371 c.	168
Scudderii Reak. Col. 54,	81	Sylvanus Esp. Pam. 366,	166
Scudderii W. Edw. Lyc. 129,	94	Sylvestris Kby. Hip. 325,	156
Selenis Kby. Mel. 231,	120	Sylvinus Bdl. Th. 100,	89
Semidea Say, Ch. 315,	152	SYNCHLOE BDL.	126
Seminole Scud. Pam. 377 a.	169	Syrichtus Fab. Pyr. 423,	176
Senne Lin. Pap. 46,	79	T	
Shasta W. Edw. Lyc. 132,	94	Tages Nis. 442,	179
Sheridonii W. Edw. Th. 114½,	186	Tamund W. Edw. Hesp. 449,	180
Silenus Bdl. Th. 83,	86	Tarpeia Pall. Ch.	155
Silenus W. Edw. Grap. 263,	131	Tarpeius God. Sat.	156
Silvestris W. Edw. Sat. 323,	156	Tarpejus Fab. Pap.	156
Silvius W. Edw. Van. 264,	131	Tarquinius Curt. Arg. 218 a.	116
Simathis Dru. Pap. 102,	89	Tarquinius Fab. Fen. 169, 103,	186
Simathis Fab. Pap. 102,	186	Tartarus Hub. Pap. 423,	176
Similis Strk. Pam. 416,	174, 191	Tau Scud. Pier. 24,	74
Simplicius Stoll, Eud. 338,	161	Taurus Fab. Pap. 382,	169
Sinon Fab. Pap. 6,	68, 181	Taygete Hub. Ch. 317,	153
Sirius W. Edw. Lyc. 155,	100	Taygete H-S, Ch. 316,	153
Sisymbrii Bdl. Pier. 32,	76	Taygete var. Stgr. 317,	154
Siva W. Edw. Th. 103,	89	Tchama Reak. Lyc. 149,	99
		Tejua Reak. Lyc. 115,	91

	Page
Telamonides Feld. Pap. 5 a.	68
<i>Terentius Scud.</i> —B. Nis. 431,	177
TERIAS SWAINS.	84, 185
Terlooii Behr, Neop. 25,	74
<i>Tessellata Scud. Hesp.</i> 423,	176
Tetra Behr, Th. 95,	88
Texana Scud. Ery. 350,	163
Texana W. Edw. Mel. 224,	119
Textor Hub. Pam. 413,	174
<i>Thanaos Bdl.</i>	177
Tharos Dru. Mel. 231,	120, 189
<i>Tharossa God. Arg.</i> 231,	120
THECLA FAB.	85, 185
Thekla W. Edw. Mel. 252,	126
Theona Men. Mel. 251,	126
Theonus Luc. Lyc. 120,	92
<i>Thersites Lee, Pap.</i> 10,	182
<i>Thetis DeB. Pap.</i> 285,	141
<i>Thetys Fab. Pap.</i> 285,	141
<i>Thiodamas Scud. Poly.</i> 265,	131
<i>Thoas Bdl.</i> —L. Pap. 7,	69
<i>Thoas Sh.</i> —Nod. Pap. 7,	182
Thoe Bdl. Lyc. 159,	101
Thoosa Scud. Anth. 43,	184
Thraso Hub. Ach. 449,	180
TIMETES BDL.	141, 190
Titus Fab. Th. 109,	90
Tityrus Fab. Eud. 340,	162, 191
<i>Toxæa God. Eum.</i> 171,	103
<i>Toxæa Gray, Eum.</i> 170,	103
<i>Transmontana Gos. Hip.</i> 329,	159
Triclaris Hub. Arg. 215,	115, 188
<i>Triclaris Mead, Arg.</i> 215,	115
Tristis Bdl. Nis. 434,	178
Tritona W. Edw. Pron. 298,	148
<i>Troglodita Hub. An.</i> 297,	147
Troglodyta Fab. Paph. 297,	147
<i>Troilus Dru. Pap.</i> 17,	71
<i>Troilus Hbst. Pap.</i> 17,	183
Troilus L. Pap. 18,	72, 183
Turnus Lin. Pap. 10,	69, 182
<i>Tyndarellus Hbst. Pap.</i> 306,	151
Tyndarus Esp. Ereb. 306,	151
<i>Tyndarus var. Mead,</i> Ereb. 306,	151
<i>Typhon var. Kby. Coen.</i> 331,	160
U	
Uhleri Reak. Ch. 319,	154
<i>Utrica W. Edw. Mel.</i> 230½,	189
Umbrosa Lint. Van. 259 a.	127, 189
Uncas W. Edw. Pam. 374,	169
Urania West. Ery. 348,	163
<i>Ursula Em. Lim.</i> 288,	190
<i>Ursula Fab. Pap.</i> 288,	143
<i>Urtica Har. Van.</i> 267,	133
Utahensis Strk. Pap. 17 e.	72, 183

	Page
V	
<i>V Album Fab. Pap.</i> 267,	132
VANESSA FAB.	127, 189
Vanillæ ab. Agr. 186 a.	108
Vanillæ L. Agr. 186,	108, 188
Vau—Album W—V. Van. 267,	132
<i>Venosa Scud. Pier.</i> 26,	74
Verna W. Edw. Pam. 395,	171
Vernalis W. Edw. Pier. 30 a.	76
Vesagus Dbl.—H. Ereb. 307,	151
<i>Versicolor Goetz. Pap.</i> 25,	184
Vesta W. Edw. Mel. 230,	120
Vestris Bdl. Pam. 393,	171
<i>Vicia W. Edw. Lyc.</i> 138,	96
Vialis W. Edw. Pam. 410,	174
Viator W. Edw. Pam. 401,	172
VICTORINA BLANCH.	142
<i>Villiersii Bdl.</i> —L. Pap. 2,	67
<i>Violacea Kby. Cup.</i> 136,	95
<i>Violacea Scud. Cy.</i> 136,	95
<i>Violacea W. Edw. Lyc.</i> 136,	95
<i>Virgilius Scud.</i> —B. Nis. 431,	178
<i>Virginienis Bdl. Ery.</i> 174,	104
<i>Virginienis Kby. Pyr.</i> 274,	138
Virginienis W. Edw. Lyc. 168,	102
Virginienis W. Edw. Pier. 27,	75
<i>Virgula Retz, Pap.</i> 371,	168
Virgulti Behr, Nem. 172 a.	104
Virida Col. ab. 58 c.	82
Viridis var. Lim. 288 a.	144
<i>Viridis W. Edw. Th.</i> 114,	91
<i>Vitellius Ab.</i> —S. Pap. 403,	173
Vitellius Fab. Pam. 397,	171
<i>Volcanica Perry, Pap.</i> 45,	78
<i>Vulcani Euc. Meth. Pap.</i> 271,	190
W	
Waco W. Edw. Anc. 417 a.	174
<i>Wakulla W. Edw. Hesp.</i> 413,	174
<i>Walshii W. Edw. Pap.</i> 5,	68
<i>Wamsutta Har. Hesp.</i> 362,	166
Weidemeyerii W. Edw. Lim. 290,	145
<i>Werdandi H.</i> —S. Col. 53,	81
Westwoodii Bdl. Ter. 72,	85
Wheeleri W. Edw. Sat. 328 f.	158
Whitneyi Behr, Mel. 240 d.	124
<i>Wingina Scud. Hesp.</i> 359,	165
<i>Wosnesenskii Men. Col.</i> 51,	80
<i>Wosnesenskii Men. Parn.</i> 22,	73
<i>Wyandot W. Edw. Hesp.</i> 424,	176
X	
<i>Xanthe Sepp. Pap.</i> 45,	78
<i>Xanthidia Bdl.</i>	84
Xanthoides Bdl. Lyc. 164,	102
Xerees Bdl. Lyc. 143,	97

		Page		Page
Y				
<i>Yuccæ</i> Bdl.-L. <i>Æg.</i> 351,	163,	191	<i>Zelicaon</i> Luc. Pap. 14,	71
<i>Yreka</i> Reak. Pier. 28,		75	<i>Zelmira</i> Feld. Lyc. 132,	94
<i>Yreka</i> W. Edw. <i>Hesp.</i> 363,		166	<i>Zephyrus</i> W. Edw. Van. 265,	131
<i>Yuma</i> W. Edw. Pam. 358,		165	<i>Zephyrus</i> Scud. Poly. 261 a.	130
Z				
<i>Zabulon</i> Bdl.-L. Pam. 398,		172	<i>Zerene</i> Bdl. Arg. 208,	113
<i>Zabulon</i> Scud. <i>Atr.</i> 399,		172	<i>Zerene</i> Bdl. Arg. 205,	113
<i>Zampa</i> W. Edw. Nis. 443,		179	<i>Zerøe</i> Bdl. Lyc. 163,	102
			<i>Zerynthia</i> Hub. Mar. 283,	141
			<i>Zolicaon</i> Bdl. Pap. 14,	71, 183
			<i>Zonaria</i> But. Pap. 6,	69

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The works of those authors who have treated solely on the Heteroceræ will be given in a continuation of the Bibliography which will be appended to the Catalogue of the Heteroceræ to be issued as the second series of this work.

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- Note on the identity of certain species of *Lycenidae*, p. 34-36, 1867.
- Description of a new genus of Diurnal *Lepidoptera* belonging to the Family *Erycinidae*, p. 37-39, 1867.
- Description of some new species of *Satyridae* belonging to the genus *Euptychia*, p. 104-110, 1867.
- Remarks upon the Fabrician species of the *Satyride* genus *Mycalesis*, with descriptions and notes on the named varieties, p. 718-721, 1867.
- Note on the *Nymphalis Caledonia* of Hewitson, p. 873, 874, 1867.
- Description of new or little known species of *Lepidoptera*, p. 221-224, 1868.
- A Monographic Revision of the *Lepidoptera* hitherto included in the genus *Adolias*, with description of new genera and species, p. 599-615, (1 coloured plate,) 1868.
- Description of a new genus of *Heterocerous Lepidoptera* founded upon the *Papilio Charmione* of Fabricius, p. 43-45, 1869.
- List of Diurnal *Lepidoptera* collected by Mr. Spaight in Northern India, p. 724-728, 1870.
- Note on the Abnormities in the Neuration of the hind wings in *Acræa Andromacha*, p. 777, 778, 1870.
- Description of some new species of *Exotic Lepidoptera*, p. 79-83, 1871.
- Description of some new species and a new genus of *Pierinæ*, with a monographic list of the species of *Ixias* (with plate), p. 250-254, 1871.
- A Monograph of the *Lepidoptera* hitherto included in the genus *Elymnias*, p. 518-525, 1871.
- A Revision of the species formerly included in the genus *Terias* (*Pierinæ*) p. 526-541, 1871.
- On a small collection of Butterflies from Angola, p. 721-725, 1871.
- Description of a new genus of *Lepidoptera* allied to *Apatura*, p. 725, 726, 1871.
- A Synonymic list of the species formerly included in the genus *Pieris*, with all others described since the sub-division of the group by recent authors, p. 26-67, 1872.
- Revision of the genus *Protopogonius*, p. 772-775, 1873.
- List of the Diurnal *Lepidoptera* of the South Sea Islands, p. 274-291, 1874.
- List of the Butterflies of Costa Rica, with description of new species, A. G. Butler & H. Druce, p. 330-370, 1874.
- Description of 33 new or little known species of *Sphingidæ* in the Coll. of the B. M., p. 3-16, 1875.
- Description of four new species of *Protopogonius*, p. 35, 36, 1875.
- Description of new species of *Sphingidæ*, p. 238-261, 1875.

Notice of a Memoir on the Heterocerous Lepidoptera of the family Sphingidæ, p. 269, 1875.

Description of several new species of Indian Heterocerous Lepidoptera, p. 391-393, 1875.

On a coll. of Butterflies from the New Hebrides and Loyalty Islands, with description of new species, p. 610-619, 1875.

On a small coll. of Butterflies from Fiji, p. 619, 620, 1875.

Description of several new species of Sphingidæ, p. 621-623, 1875.

Revision of the Lepidopterous genus *Teracolus*, with description of new species, p. 126-165, 1876.

On a small coll. of Butterflies from the New Hebrides, p. 251-253, 1876.

Description of Lepidoptera from coll. of Lt. H. Roberts, p. 308-310, 1876.

Description of new species of Lepidoptera from New Guinea, with notice of a new genus, p. 765-768, 1876.

Description of new species of Heterocerous Lepidoptera in the coll. of the B. M., p. 168-170, 1877.

*BUTL. TRANS. ENT. SOC. LOND.

Transactions of the Entomological Society of London, 1865-1876.

A Monograph of the genus *Hestia*; with a tabular view of the Danaidæ, p. 467-484, vol. V, 3d Series, 1865-1867.

Description of a new species of *Hestia* which mimics a *Danais*, p. 9, 10. Remarks upon certain Caterpillars, &c., which are unpalatable to their enemies, p. 27-29.

Description of new and little known forms of Diurnal Lepidoptera, p. 273-276, 1869.

Descriptions of six new species of *Callidryas*, p. 9-12.

Notes on the species of *Charaxes* described in the "Reise der Novara," with descriptions of two new species, p. 119-122.

On Butterflies received by Mr. Swanzy from West Africa, p. 123, 124.

Descriptions of some new Diurnal Lepidoptera, chiefly *Hesperiidæ*, p. 485-520, 1870.

Descriptions of a new genus and six new species of *Pierinæ*, p. 169, 173.

Descriptions of five new species and a new genus of Diurnal Lepidoptera from Shanghai, p. 401-403, 1871.

On certain species of *Pericopides* in the collection of Mr. W. W. Saunders, with a list of the described species belonging to that group, p. 49-58.

Notes on certain species of *Pericopides* omitted in a list of species recently read before the Society, p. 255-257, 1872.

Contributions towards a knowledge of the *Rhopalocera* of Australia, p. 1-10.

A list of the Lepidoptera referable to the genus *Hypsa* of Walker's List, with a description of new genera and species, p. 315-329, 1875.

*CATESBY. NAT. HIST. CAR.

Mark Catesby, of London. Born 1679; died 1749.

The Natural History of Carolina, Florida and the Bahama Islands, containing the figures of Birds, Beasts, Fishes, Serpents, Insects and Plants, particularly the Forest-trees, Shrubs and other Plants, not hitherto described, or very incorrectly figured by authors. Together with their descriptions in English and French. To which are added observations on the air, soil and waters, with remarks upon Agriculture, Grain, Pulse, Roots, etc. To the whole of which is prefixed a new and correct Map of the Countries treated of. By Mark Catesby, F.R.S. London, W. Innys and R. Manby. Vol. I, 1731; vol. II, 1743. Appendix, 1748. In English and French.

Some of the figures of Lepidoptera are curious exaggerations. Others are quite good. A second edition was issued in 1754, and a third in 1771.

*CAULFIELD. CAN. ENT.

Frank. B. Caulfield, in Montreal, Canada.

In Canadian Entomologist are the following relating to Lepidoptera:

Pieris Rapae, p. 98, vol. IV, 1872.

Pieris Rapae, p. 59.

Rare Captures, p. 155, vol. V, 1873.

Notes on the Larva of *Leucania Pseudargyria*, Guenee, p. 132, 133, vol. VI, 1874.

Notes on the Larva of *Grapta Faunus*, Edwards, p. 49, 50.

List of Diurnal Lepidoptera of the Island of Montreal, P. Q., p. 86-90. Correspondence, p. 119.

Notes on the Larva of *Catocala Ilia*, Cram., p. 208, 209.

List of Sphingidae and Zygenidae occurring on the Island of Montreal, P. Q., p. 241, 242, vol. VII, 1875.

Addenda to Lists of Diurnal Lepidoptera, Sphingidae and Zygenidae occurring on the Island of Montreal, P. Q., p. 38, 39.

On *Platysamia Columbia*, Smith, p. 77-80; 95-98; vol. VIII, 1876.

Notes on Hibernating Butterflies, p. 40.

List of Bombycidae occurring on the Island of Montreal, P. Q., p. 90-92, vol. IX, 1877.

Notes on the Larva of *Samia Columbia*, Smith, p. 41, 42, (with col. plate,) vol. X, 1878.

*CHENU. PAP. DIUR.

Dr. Jean Charles Chenu. Born in Metz 1808.

Encyclopédie d'Histoire Naturelle, ou traité complet de cette science d'après les travaux des naturalistes les plus éminents de tous les pays et de toutes les époques Buffon, Daubenton, etc., etc., par le Dr. Chenu, Paris. Vol. of Papillons, 1851-1853; vol. of Papillons Nocturnes, ? 1857.

CLERCK. ICONES.

Charles Alexander Clerck. Died July 22, 1765.

Icones Insectorum rariorum cum nominibus eorum trivialibus locisque C. Linnaei Syst. Nat. allegatis. Holmiae, 1759-1764.

Text in Swedish and Latin.

Owing to this work having been privately distributed, and not sold, it has become exceedingly rare. Old Gottlob Wilhelm in his "Unterhaltungen," Ins. II, (1779), p. 16, relieves himself in this wise: "Fifty-five pages large 4to, a simple Register, to-

gether with a Dedication and Preface, compose the whole work, which at auction was sold for 600 Swedish dollars."

*CRAM. PAP. EXOT. I-IV.

Pierre Cramer.

Papillons exotiques des trois parties du monde l'Asie, l'Afrique et l'Amérique rassemblés et décrits par Mr. Pierre Cramer, dessinés sur les originaux, gravés et enluminés sous sa direction. Amsteldam, Baalde; Utrecht, Barthelemy Wild.

Vol. I, 1779, plates 1-96; II, 1779, plates 97-192; III, 1782, plates 193-288; IV, 1782, plates 289-400. Text in Hollandish and French.

*CURTIS. APP. TO NARR. ROSS' 2D VOY.

John Curtis, in London, Naturalist and Artist.

Description, &c., of the Insects brought home by Commander James Clark Ross, 1835.

In the "Appendix to the Narrative of a second voyage in search of a north-west passage, and of a residence in the Arctic Regions during the years 1829-1833, etc., etc. London, A. W. Webster."

Lepidoptera are on pages lxx-lxxv.

*DALM. VETENSK. ACAD. HANDL.

Johann Wilhelm Dalman. Born at Hinseberg in Westmanland Nov. 4, 1787; died at Stockholm July 11, 1828. Professor at and Inspector of the Museum of the Academy.

Försök till systematisk Uppställning af Sveriges Fjärilar.

In Kongl. Vetenskaps Academiens Handlingar, Stockholm, p. 48-101; 199-225, 1816.

*DBLDY. ENTOM.

Edward Doubleday. Born at Epping, Eng., Oct. 9, 1810; died in London Dec. 14, 1849.

The Entomologist, conducted by Edward Newman. London. I, 1841. Contains the following on N. American Lepidoptera:

Remarks on some North American Lepidoptera; including a communication from T. W. Harris, p. 97-101.

Description of a new North American *Polyommatus*, p. 209-211.

*DBLDY. LIST (OR CAT. LEP.) B. M.

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum. London. Part I, 1844; II, 1847. Appendix, 1848.

*DBLDY.-HEW. GEN. DIUR. LEP.

Edward Doubleday and *William C. Hewitson.*

The Genera of Diurnal Lepidoptera, comprising their generic characters, a notice of their habits and transformations, and a catalogue of the species of each genus; illustrated with 86 plates by W. C. Hewitson. London: Longman. Vol. I, 1846-1850; vol. II, 1850-1852.

With atlas of 79 magnificent coloured plates.

With the above was also associated Prof. J. O. Westwood in the completion of this work.

*DODGE. CAN. ENT.

G. M. Dodge, in Glencoe, Nebraska.

In Canadian Entomologist are the following relative to Lepidoptera:

An Error Corrected, p. 198.

A new Hesperian (*H. Illinois*), p. 217, 218, vol. IV, 1872.

Hesperia Illinois identical with Hesp. Aconootus, Scud., p. 60, vol. V, 1873.

Hesperia Pawnee, *n. sp.*, p. 44, 45.

Notes on collecting Lepidoptera, p. 114, 115.

Catocala Whitneyi, *n. sp.*, p. 125, 126, vol. VI, 1875.

Catocala Nebraskæ, Dodge, p. 2, vol. VII, 1875.

*DON. BRIT. INS. (OR NAT. HIST. INS.).

Edward Donovan, Painter, in London. Died 1837.

The Natural History of British Insects, explaining them in their several states, with the periods of their transformations, their food, economy, etc., together with the history of such minute Insects as require investigation by the microscope. London: Rivington, 1813.

In 16 volumes; each year one vol.

*DON. INS. IND.

An Epitome of the Natural History of the Insects of India, and the Islands of Indian Seas. London, 1800–1803.

58 coloured plates.

*DON. NAT. REP.

The Naturalist's Repository, or monthly miscellany of exotic natural history, consisting of elegantly coloured plates with appropriate scientific and general descriptions of the most curious, scarce and beautiful productions of nature that have been recently discovered in various parts of the world; and more especially such novelties as from their extreme rarity remain entirely undescribed, or which have not been duly noticed by any preceding naturalist. The whole composed according to the latest improvements in the various departments of the science, and forming collectively a truly valuable compendium of the most important discoveries of Quadrupeds, Birds, Fishes, Insects, Shells, marine productions, and every other interesting object of natural history, the produce of Foreign Climates. Printed for the author and W. Simpkin and R. Marshall. London.

Vol. I, 1823; II, 1824; III, 1825; IV, 1826; V, 1827.

Coloured plates.

*DRU. ILL. EX. ENT.

Dru Drury, Goldsmith, of London. His collection, the largest of his time, containing 11,000 species, was sold at auction during his life, owing to pecuniary embarrassments, the result of his expenditures in pursuit of his beloved science.

Illustrations of Natural History, wherein are exhibited upwards of two hundred and forty figures of exotic insects, according to their different genera; very few of which have hitherto been figured by any author, being engraved and coloured from nature, with the greatest accuracy and under the author's own inspection, on fifty copper plates; with a particular description of each insect, etc. London: White.

Vol. I, 1770; II, 1773; III, 1782.

The plates were engraved by Moses Harris, the best entomological artist of his day. The text is in English and French.

*DUNCAN. NAT. LIB. ENT. III.

James Duncan.

The Natural History of British Butterflies. Illustrated by thirty-six plates; with memoir and portrait of Werner. By James Duncan, M. W. S., Edinburgh. 1835.

Being vol. III Entomology of "the Naturalist's Library, conducted by Sir William Jardine, Bart." and vol. X of the whole series.

*DUNCAN. NAT. LIB. ENT. IV.

The Natural History of British Moths, Sphinxes, etc. Edinburgh, 1836. With thirty-two col. plates, and portrait and memoir of Madam Merian.

Vol. IV Ent. of the Nat. Lib. and vol. XIV of the whole series.

*DUNCAN. NAT. LIB. ENT. V.

The Natural History of Foreign Butterflies, etc. Edinburgh, 1837.

With thirty-three col. plates, and portrait and memoir of Lamarck.

Vol. V Ent. of the Nat. Lib., and vol. XVIII of the whole series.

*DUNCAN. NAT. LIB. ENT. VII.

The Natural History of Exotic Moths, etc. Edinburgh, 1841. With thirty-four col. plates, and portrait and memoir of Latreille.

Vol. VII of the Nat. Lib. and vol. XXXIII of the whole series.

*DUP. VI-XI.

Philogene Auguste Joseph Duponchel. Born 1774 in Valenciennes; died Jan. 10, 1846, in Paris.

Histoire Naturelle des Lépidoptères, ou papillons de la France par M. J. B. Godart; ouvrage basé sur la méthode de M. Latreille, avec les figures de chaque espèce dessinées et colorées d'après nature par M. P. Duménil. Paris, Méquignon-Marvis.

Vol. VI, 1826; VII, part 1, 1827, p. 2, 1829; VIII, p. 1, 1830, p. 2, 1831; IX, 1834; X, 1836; XI, 1838. Cat. Meth. to Hist. Nat., etc., 1844.

This is a continuation of Godard's "Histoire Naturelle des Lepidopteres," etc., vol. I-V, 1821-1824.

*DUP. ICON.

Iconographie et Histoire Naturelle des Chenilles, pour servir de complément à l'Histoire Naturelle des Lépidoptères ou Papillons de France par P. A. J. Duponchel (et Guénée), Paris, 1849.

*DUP. LEP. FR. SUPPL. I-IV.

Histoire Naturelle des Lépidoptères de France, Supplément. Paris, Méquignon-Marvis.

Vol. I, Diurnals, 50 coloured plates, 1832. Vol. II, Crepusculaires, 12 col. pl. 1835. Vol. III, Nocturnes, 50 col. pl. 1836. Vol. IV, Nocturnes, 24 col. pl. 1842.

*EDWDS. (W. H.) PROC. ENT. SOC. PHIL. I-VI.

William H. Edwards, of Coalburgh, W. Virginia.

Papers in the Proceedings of the Entomological Society of Philadelphia: Notes upon *Grapta Comma*, Harris, and *Grapta Faunus*, Edwards, (Catalogue of some authors,) p. 182-184.

Descriptions of certain species of Diurnal Lepidoptera found within the United States, figured in Doubleday's Genera, but undescribed, p. 221-224, vol. I, 1861-1863.

Descriptions of certain species of Diurnal Lepidoptera found within the limits of the United States and British America. No. 1, p. 14-22; No. 2, p. 78-82; No. 3, p. 501-507.

Description of certain Catocala, found within the United States, p. 508-512, vol. II, 1863-1864.

Description of the female of *Argynnis Diana*, p. 431-434.

Notes on the *Argynnides* of California, p. 434-436, vol. III, 1864.

Descriptions of certain species of Diurnal Lepidoptera found within the limits of the United States and British America. No. 4, p. 201-204.

Notes upon *Papilio Asterias* and *Saturnia Promethea*, hermaphrodites, p. 390, vol. IV, 1865.

Description of a new species of *Limenitis*, p. 148, vol. V, 1865.

On certain North American species of *Satyrus*, p. 195-200.

Descriptions of certain species of Diurnal Lepidoptera, etc., etc. No. 5, p. 200-208, vol. VI, 1866-1867.

*EDWDS. (W. H.) TRANS. AM. ENT. SOC. I-V.

The following Papers in the Transactions of the American Entomological Society :

Descriptions of certain species of Diurnal Lepidoptera found in the United States, p. 286-288, vol. I, 1867-1868.

Description of a new Hesperian, p. 122.

Notes on a remarkable variety of *Papilio Turnus*, and descriptions of two new species of Diurnal Lepidoptera, p. 207-210.

Descriptions of certain species of Diurnal Lepidoptera found in the United States, p. 311-312.

Descriptions, etc., etc., etc., p. 369-376, vol. II, 1868-1869.

Notes on *Graptas C Aureum* and *Interrogationis*, Fab., p. 1-9.

Descriptions of new species of Diurnal Lepidoptera, etc., etc., p. 10-22.

Descriptions, etc., etc., etc., p. 205-216.

Descriptions of new North American Diurnal Lepidoptera, p. 189-196.

Descriptions of new species of North American Lepidoptera, p. 266-277, vol. III, 1870-1871.

Descriptions of new species of Diurnal Lepidoptera, etc., p. 61-70.

Descriptions, etc., etc., etc., p. 343-348, vol. IV, 1872-1873.

Descriptions of new species of Diurnal Lepidoptera, etc., p. 13-19.

Descriptions, etc., etc., etc., p. 103-111.

Description of a new species of *Catocala* from Arizona, p. 112.

Descriptions of new species of Diurnal Lepidoptera found within the United States and British North America, p. 202-208.

New species of Diurnal Lepidoptera, p. 289-292, vol. V, 1874-1876.

*EDWDS. (W. H.) PROC. ACAD. NAT. SC. PHIL.

Proceedings of the Academy of Natural Sciences of Philadelphia. Vols. I-XXVIII, 1841-1876.

In the above are the following papers :

Descriptions of certain species of Diurnal Lepidoptera found within the limits of the United States and British America, p. 160-164, vol. XIII, 1861; continued p. 54-58 and 221-226, vol. XIV, 1862.

*EDWDS. (W. H.) BUTT. N. AM. I, II.

The Butterflies of North America, by Wm. H. Edwards, member of the American Entomological Society. Philadelphia: The American Entomological Society, vol. I, 1868-1872; vol. II, 1874-1878.

*EDWDS. (W. H.) SYN. N. AM. LEP.

Synopsis of North American Butterflies. By W. H. Edwards, member of the American Entomological Society. Philadelphia: The American Entomological Society, 1872.

Text, 51 pages. Afterwards issued with vol. I of the Butterflies of N. America.

*EDWDS. (W. H.) CAN. ENT.

In the Canadian Entomologist are the following :

Papilio Machaon in British America, p. 22.

Habits of *Melitæa Phaeton*, p. 59, 60.

Melitæa Phaeton, p. 80.

Larva of *Melitæa Phaeton*, p. 102, vol. I, 1869.

Melitæa Phaeton, Cram., p. 36.

Rearing Eggs of Butterflies, p. 115.

Rearing Butterflies from the Egg, p. 133.

Food-plant of *Darapsa Versicolor*, p. 134.

Rearing Butterflies from the Egg, p. 162-164.

Colias Philodice, p. 179, vol. II, 1869-1870.

Rearing Butterflies from the Egg, p. 70, vol. III, 1871.

Notes on some Butterflies and their Larva, p. 238, 239, vol. IV, 1872.

Some remarks on changes in names of certain Butterflies, p. 8-10.

Some remarks on Entomological Nomenclature, p. 21-36.

On the identity of *Grapta Dryas* with *Comma*, p. 184.

Notes on the early stages of some of our Butterflies, p. 223-225, vol. V, 1873.

Larva of *P. Brevicauda*, p. 20.

Notes on the Larvæ of *Argynnis Cybele*, *Aphrodite* and *Diana*, p. 121-125.

Grapta Comma and *Dryas*, p. 157, vol. VI, 1874.

Some notes on *Lycaena Pseudargiolus*, p. 81-83.

Notes on Butterflies, p. 150, 151.

Argynnis Myrina and its alleged abnormal peculiarities, p. 189-195.

An Abstract of Dr. Aug. Weismann's Paper on "The Seasonal-Dimorphism of Butterflies." To which is Appended a Statement of Some Experiments made upon *Papilio Ajax*, p. 228-240, vol. VII, 1875.

Notes on Entomological Nomenclature. Part I, p. 41-52; Part II, p. 81-94; Part II concluded, p. 113-119.

Notes on Preparatory Stages of *Danaïs Archippus*, p. 119, 120.

No. of Broods of *Danaïs Archippus*, p. 148.

Correspondence, p. 160.

Farther notes upon *Argynnis Myrina*, p. 161-163.

The Preparatory Stages of *Lycaena Comyntas*, p. 202-205, vol. VIII, 1876.

History of *Phyciodes Tharos*, a Polymorphic Butterfly, p. 1-10.

Correspondence, p. 17.

Description of a new species of *Pamphila* from Colorado, p. 29, 30.

Supplementary Notes upon *Argynnis Myrina*, with mention of the species *Bellona*, *Atlantis* and *Cybele*, p. 34-36.

History of *Phyciodes Tharos*, a polymorphic Butterfly, continued from p. 10, p. 51--58.

Description of a new species of Hesperian from Texas, p. 58, 59.

Notes on *Limenitis Proserpina* and *Arthemis*, p. 114.

Correspondence, p. 120.

On the Preparatory Stages of *Satyrus Nephela*, p. 141--143.

Description of the Preparatory Stages of *Phyciodes Harrisii*, Scudder, p. 165--168.

Butterflies on Martha's Vineyard, p. 178.

Description of new species of Butterflies belonging to the N. American Fauna, p. 189--192.

An account of some farther experiments upon the effect of cold in changing the form of certain Butterflies, p. 203--206.

Description of the Preparatory Stages of *Neonympha Sasybius*, p. 229--231, vol. IX, 1877.

Notes on *Lycena Pseudargiolus* and its Larval History, p. 1--14, vol. X, 1878.

*EDWDS. (W. H.) HAYDEN'S REP. EXP. MONTANA.

List of Species of Butterflies collected by Campbell Carrington and William B. Logan, of the Expedition in 1871.

Being pages 466, 467, in the "Preliminary Report of the U. S. Geog. Survey of Montana and portions of adjacent Territories, being a fifth Annual Report of Progress, by F. V. Hayden, Washington, 1872."

*EDWDS. (W. H.) FIELD AND FOREST.

Field and Forest, a monthly journal devoted to the Natural Sciences. Charles R. Dodge, Editor, Washington.

In vol. III of the above are the following:

Lepidoptera of the Big Horn Mountains, p. 48, Sept., 1877.

Descriptions of new species of Diurnal Lepidoptera found in North America, p. 86--89, Nov., 1877.

Descriptions, etc., etc., etc., p. 101--105, Dec., 1877.

Descriptions of new species of North American Lepidoptera, p. 115--119, Jan., 1878.

Descriptions of new species of North American Lepidoptera (*Pyrgus Xanthus*, *Argynnis Electa*), p. 142--144, March, 1878.

*EDWDS. (HY.) PROC. CAL. ACAD.

Henry Edwards, Tragedian. Born in England; now living in San Francisco, California.

Pacific Coast Lepidoptera.

In the Proceedings of the California Academy of Sciences:

Article No. 1. Description of some new or imperfectly known Heterocera, p. 109, July 7, 1873.

No. 2. On the Transformation of the Diurnal Lepidoptera of California and the adjacent Districts, p. 161, Oct. 6, 1873.

No. 3. Notes on some Zygenidae and Bombycidae of Oregon and British Columbia; with descriptions of new species, p. 183, Nov. 3, 1873.

No. 4. Descriptions of some new Genera and Species of Heterocera, p. 264, Feb. 17, 1874.

No. 5. On the Earlier Stages of some species of Diurnal Lepidoptera, p. 325, July 6, 1874.

- No. 6. Notes on the Earlier Stages of *Ctenucha Multifaria*, Boisduval, p. 344, July 20, 1874.
- No. 7. Descriptions of some New Species of Heterocera, p. 365, Sept. 7, 1874.
- No. 8. On the Transformations of some Species of Heterocera not previously described, p. 367, Sept. 7, 1874.
- No. 9. Description of a New Species of *Thyris*, from the Collection of Dr. Hermann Behr, p. 413, Nov. 2, 1874.
- No. 10. On a New Species of *Papilio* from California, p. 423, Dec. 7, 1874. Vol. V.
- No. 11. List of the Sphingidæ of California and adjacent Districts, with Descriptions of New Species, p. 86, Apr. 19, 1875.
- No. 12. On some New Species of Noctuidæ, p. 132, May 17, 1875.
- No. 13. On the Earlier Stages of *Vanessa Californica*, p. 146, June 7, 1875.
- No. 14. Notes on the genus *Catocala*, with Descriptions of New Species, p. 207, July 19, 1875.
- No. 15. Description of a New Species of *Catocala* from San Diego, p. 185, Oct. 18, 1875. Vol. VI.
- No. 16. Notes on the Transformations of some Species of Lepidoptera, not hitherto recorded, p. 19, Apr. 19, 1876.
- No. 17. On the Transformations of *Colias* (*Meganostoma* Reak.) *Eurydice*, Bdv. p. 60, June 5, 1876.
- No. 18. Description of a New Species of *Heterocampa*, (Larva and Imago), p. 121, Oct. 16, 1876.
- No. 19. Notes on a Singular Variety of the Larva of *Halesidota Agassizii* Packd. p. 128, Nov. 3, 1876.
- No. 20. Notes on the Case-Bearing Moths, (*Psychidæ*), with notices of Californian Species, p. 140, Nov. 20, 1876.
- No. 21. Descriptions of two New Species of the genus *Thecla*, p. 143, Dec. 1, 1876.
- No. 22. Notes on some Diurnal Lepidoptera, with descriptions of New Varieties, p. 163, Dec. 18, 1876.
- No. 23. Description of a New Species of *Catocala*, and a List of the Californian Specimens of the genus known to occur in collections, Jan. 15, 1877.
- No. 24. Notes on the genus *Colias*, with descriptions of some apparently new forms, Feb. 5, 1877.
- No. 25. Description of a New Species of *Plusia* from Arizona, March 5, 1877. Vol. VII.

Of these last three papers the advance sheets (author's proofs) have so far only been issued.

*EMMONS. AGR. NAT. HIST. N. Y. V.

Ebenezer Emmons, Doctor of Medicine, in Albany.

The Natural History of New York. Agriculture of New York, comprising an account of the classification, composition, and distribution of the Soils and Rocks and of the climate and agricultural productions of the State, together with descriptions of the more common and injurious insects. Albany, Van Benthuysen, 1854.

Vol. V, p. 198-256, and plates 35-47 relate to the Insects.

The plates are mostly execrably drawn and as badly coloured, and the text abounds in errors of all sorts.

*ENC. METH. INS. PLATES.

Tableau Encyclopedique et Methodique des trois Règnes de la Nature. Dix-huitieme partie Insectes. A Paris, Chez Henri Agasse, Imprimeur-Libraire, rue des Poitevins. L'an V. de la Republique Française. 1797.

*ENGR. PAP. D'EUR.

Marie Dominique Joseph Engramelle. Monk of the order of St. Augustine. Born March 24, 1727, at Nedonchel in Artois; died in Paris 1780.

Papillons d'Europe, peints d'apres nature par M. Ernst, gravés et colories sous sa direction. Les Chenilles, Chrisalides et Papillons de Jour. Décrits par Engramelle Relig. Augtin. Q. S. G. Paris.

Vol. I, 1779; II, 1780; III, 1782; IV, 1785; V, 1786; VI, 1788; VII, 1790; VIII, 1792.

ESCH. KOTZEB. REISE.

Johann Friederich Eschholtz, Doctor of Medicine and Professor of Zoology. Born in Dorpat, Russia, Nov. 1, 1793; died in same place May 19, 1831. He made the voyage around the world twice with Krusenstern and Kotzebue.

Beschreibung exotischer Schmetterlinge with 6 plates.

In Kotzebue's Reise um die Welt. Weimar, 1830.

*ESP. AUS. SCHMETT.

Eugene Johann Christoph Esper, Professor in Erlangen. Died July 27, 1810.

Die Ausländischen oder die ausserhalb Europa zur Zeit in den übrigen Welttheilen vorgefundenen Schmetterlinge in Abbildungen nach der natur mit Beschreibungen. I, Erlangen, Walther, 1785--1798.

EVERSM. ENT. RUSS. V.

Edward Eversmann, Professor of Zoology in Kasan. Died in 1861.

Nymphalides, in vol. V Entomographia imperii russici; Genera Insectorum systematice exposita et analysi iconographica instructa. Moscou, 1851.

*FABR. GEN. INS.

Johann Christian Fabricius, the pupil of Linnæus, counsellor to the King of Denmark, Professor in Kiel. Born Jan. 7, 1745, in Tondern in Schleswig; died March 3, 1808, at Copenhagen.

Genera Insectorum eorumque characteres naturales secundum numerum, figuram, situm et proportionem omnium partium oris adjecta mantissa specierum nuper detectarum. Chilonii, Bartsch. ? 1776.

*FABR. SYST. ENT.

Systema Entomologiæ sistens Insectorum classes, ordines, genera, species, adjectis synonymis, locis, descriptionibus, observationibus. Flensburgi et Lipsiæ, 1775.

In Latin; 1 vol., pages 832.

*FABR. SP. INS. II.

Species Insectorum exhibentes eorum differentias specificas, synonyma auctorum, loca natalia, metamorphosin adjectis observationibus, descriptionibus. Tom. II, Hamburgi et Kilonii, 1781.

Latin. Pages 494. (With Appendix p. 510)

*FABR. MANT. INS. II.

Mantissa Insectorum sistens species imper detectas adjectis synonymis, observationibus, descriptionibus, emendationibus. Tom. II, Hafniæ, 1787.

Latin. Pages 382.

*FABR. ENT. SYST. III.

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Part I, 1793, pages 487 ; Part II, 1794, pages 349. Latin.

*FABR. ENT. SYST. SUPPL.

Supplementum Entomologiae systematicae. Hafniæ, Proft et Storch, 1798.

Pages 572. (Index Alphabeticus, p. 53.) Latin.

FABR. ILL. MAG.

Systema glossatorum.

In Illiger's Magazin für Insectenkunde, p. 277–296, vol. VI, 1807.

*FABR. (OTTO). FAUN. GROEN.

Otto Fabricius, Missionary in Frederikshaab, Greenland, from 1768 to 1774. Born in Rudkjoebing March 6, 1744 ; died May 20, 1822.

Fauna Groenlandica, systematice sistens animalia groenlandiae occidentalis hactenus indagata, quoad nomen specificum, triviale, vernaculumque, synonyma auctorum plurimum, descriptionem, locum, victum, generationem, mores, usum, capturamque singuli ; prout detegendi occasio fit, maximaque parte secundum proprias observationes. Hafniæ et Lipsiæ, Rothe, 1780.

Insects, pages 184–221.

*FELD. REISE NOV. LEP.

Dr. Cajetan Felder, Vice-President Zoological–Botanical Society of Vienna, Lord Mayor of Vienna, etc., etc., etc.

Dr. Rudolf Felder, son of the above, died in 1871, in his 28th year.

Reise der Oesterreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den befehlen des Commodore B. von Wüllerstorff-Urbair. Zoologischer Theil zweiter Band. zweite abtheilung : Lepidoptera von Dr. Cajetan und Rudolf Felder. Rhopalocera, Wien. 1864–1867.

Lepidoptera von Dr. Cajetan Felder, Dr. Rudolf Felder and Alois F. Rogenhofer. Atlas von 140 Tafeln, mit 2,500 Abbildungen Wien. 1864—Juli 1875.

Text in German and Latin. 549 pages. Plates of the most sumptuous description possible, and comprise 2,500 coloured figures of all families and genera of Lepidoptera.

*FELD. VERH. ZOOL. BOT. GES.

Verhandlungen der Kaiserlichen–Königlichen, Zoologisches–Botanischen Gesellschaft in Wien. Herausgegeben von der Gesellschaft. Vol. I–XXVI, 1852–1876.

Contains the following :

Verzeichniss der Macrolepidopteren der Novara Expedition p. 473–496, vol. XII, 1862.

Species Lepidopterorum hucusque descriptae veliconibus Expressae in Seriam Systematicum digestae, (C. et R. Felder,) p. 289–378, vol. XIV, 1864.

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*FELD. WIEN. ENT. MON.

Wiener Entomologische Monatschrift. Verantwortliche Redacteure: Julius Lederer und Ludwig Miller. Wien. vol. I, 1857; II, 1858; III, 1859; IV, 1860; V, 1861; VI, 1862; VII, 1863; VIII, 1864.

The following papers of Drs. C. and R. Felder are contained in the above work:

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No. 5, p. 97-112; No. 6, p. 225-251.

Lepidoptera nova in paeninsula Malayica collecta diagnosibus instructa a C. & R. Felder. Series prima, p. 394-402, vol. IV, 1860.

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Lepidoptera nova a Dre. Carolo Semper in insulis Philippinis collecta diagnosibus exposuerunt C. et R. Felder. Series prima, p. 297-306, vol. V, 1861.

Observationes de Lepidopteris nonnullis Chinae centralis et Japoniae, communicatae a C. et R. Felder, p. 22-32; 33-40.

Specimen faunae lepidopterologiae riparum fluminis negro superioris in Brazilia septentrionali auctoribus C. et R. Felder, p. 65-80; 109-126; 175-192; 229-235.

Lepidoptera nova a Dre. Carolo Semper etc., etc., etc. Series secunda, p. 282-294.

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FELD. (DR. CAJETAN). NEU. LEP.

Ein Neues Lepidopteron aus der Familie der Nymphaliden und seine Stellung im natürlichen Systeme, begründet aus der Synopse der übrigen Gattungen. Jena, Frommann, 1861.

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*FISHER. PROC. ACAD. NAT. SC. PHIL.

James C. Fisher, Doctor of Medicine.

Proceedings of the Academy of Natural Sciences of Philadelphia.

Description of a new species of *Argymis*, p. 179, 180, t. 2, v. X, 1858; p. 352, v. XI, 1859.

*FITCH. REP. N. Y. STATE AGR. SOC.

Asa Fitch, M. D., formerly Entomologist of the New York State Agricultural Society.

First Report on the Noxious, Beneficial and other insects of the State of New York, made to the State Agricultural Society, pursuant to an annual appropriation for this purpose from the Legislature of the State. P. 705-880, in vol. XIV of the Transactions of the New York State Agricultural Society, 1854.

Second Report, etc., p. 409-559 in Trans. vol. XV, 1855.

Third Report, etc., p. 315-490 in Trans. vol. XVI, 1856.

Fourth Report, etc., p. 687-753 in Trans. vol. XVII, 1857.

Fifth Report, etc., p. 781-854 in Trans. vol. XVIII, 1858.

An address on our most pernicious insects p. 587-598 in Trans. vol. XIX, 1859.

Sixth Report, etc., p. 745-868 in Trans. vol. XX, 1860.

Seventh Report, etc., p. 814-859, in Trans. vol. XXI, 1861.

Eighth Report, etc., p. 657-691 in Trans. vol. XXII, 1862.

Ninth Report, etc., p. 778-823 in Trans. vol. XXIII, 1863.

Tenth Report, etc., p. 433-461 in Trans. vol. XXIV, 1864.

Eleventh Report, etc., p. 487-543 in Trans. vol. XXVI, 1866.

Twelfth Report, etc., p. 889-932 in Trans. vol. XXVII, 1867.

Thirteenth Report, etc., p. 495-566 in Trans. vol. XXIX, 1869.

Fourteenth Report, etc., p. 355-381 in Trans. vol. XXX, 1870.

Reprints of some of the above appeared at intervals as follows:

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Third, Fourth and Fifth Reports, etc., 1859, p. 1-74.

Sixth, Seventh, Eighth and Ninth Reports, etc., 1865, p. 1-259.

*FOURC. ENT. PARIS.

Antoine Francois Fourcroy, Doctor of Medicine and Professor of Chemistry.

Born in Paris 1775; died Dec. 16, 1809, in Paris.

Entomologia Parisiensis, sive catalogus Insectorum, quæ in Agro Parisiensi reperiuntur; secundum methodum Geoffræanæ in sectiones, genera & species distributus: cui addita sunt nomina trivialia & fere trecentæ novæ species. Paris, 1785.

In two vols.

*FREYER. NEUE. BEIT. I-VII.

C. F. Freyer, in Augsburg.

Neuere Beiträge zur Schmetterlingskunde mit Abbildungen nach der natur. Augsburg. Vol. I, 1833; II, 1836; III, 1839; IV, 1842; V, 1845; VI, 1852; VII, 1858.

*GAY, FAUN. CHIL.

See Blanch. Gay, Faun. Chil.

*GLOV. U. S. AGR. REP.

Prof. Townsend Glover, for many years previous to 1878 Entomologist to the Department of Agriculture at Washington.

In the various Reports of the United States Department of Agriculture are the following relative to Lepidoptera:

Insects injurious and beneficial to vegetation, p. 59-89, (8 plates,) 1854.

Insects frequenting the cotton plant, p. 64-105.

Insects found in cotton fields not injurious to crops, p. 105-108.

Insects beneficial to cotton, p. 108-115.

Insects injurious and beneficial to the Orange tree, p. 115-119.

Accidents and diseases of cotton plants, p. 230, 1855.

Investigations on the insects and diseases affecting the cotton plant, p. 128-157, 1857.

Insects frequenting the Orange trees of Florida, p. 256-271.

Insects injurious to the cotton plant, p. 271-272, 1858.

The Hang Worm, p. 551-554, 1859.

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Report of the Entomologist, p. 33-45.

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Report of the Entomologist, p. 17-46, 1876.

*GLOV. IND.

Manuscript Notes from my Journal or Entomological Index to names, &c., in Agricultural Reports. With list of Vegetable and Animal substances injured or destroyed by Insects, &c. Written by Townend Glover. Transferred to and printed from stone by F. C. Entwisle. Washington, 1877.

Only fifty copies printed.

*GMEL. SYST. NAT. I.

Johann Friederich Gmelin, born in Tubingen Aug. 8, 1748; died in Gottingen Nov. 1, 1804.

Caroli a Linné Systema Naturae. Ed. XIII, Lipsiae 1788.

*GN. ANN. SOC. ENT. FR.

A. Guenee.

Annales de la Société Entomologique de France ser. IV, vol. IV, 1864.

Note sur Quelques especes du genre *Colias*, p. 198-200.

*GODT. I-V.

Jean Baptiste Godart (or *Godard*). Born at Origny Sainte-Benoit, Picardy, Nov. 25, 1775; died July 27, 1825.

Histoire Naturelle des Lépidoptères ou papillons de France, decrits par M. Godart, peints par M. C. Vauthier. Paris, Crevot, vol. I Diurnes, 1821; II, Diurnes, 1822; III, Crepusculaires, 1821; IV, Nocturnes, 1822; V, Nocturnes, 1824.

Continued by Duponchel. See "Dup. VI-XI."

*GODT. ENC. METH. IX.

Encyclopédie Méthodique. Histoire Naturelle. Entomologie, ou Histoire Naturelle des Crustacés, des Arachnides et des Insectes, par M. Latreille. Tome Neuvième, par M. Latreille, de l'Académie des Sciences, et M. Godart, ancien Proviseur du Lycée de Bonn, etc. A Paris, 1819.

*GODT. ENC. METH. IX SUP.

Encyclopédie Méthodique. Supplement. 1823.

Being the last pages, 804–828, of the above vol. IX of the Enc. Meth.

*GOEZE. ENT. BEYT. I–III.

Johann August Ephraim Goeze, Pastor of the St. Blasius Church in Quedlinburg. Born in Aschersleben May 28, 1731; died in Berlin June 27, 1793.

Entomologische Beiträge zu des Ritter Linné Zwölften Ausgabe des Natursystems. Leipzig, bey Weidmann, Erben und Reich.

• Vol. I, 1777; II, 1778; III, part 1, 1779; p. 2, 1780; p. 3, 1781; p. 4, 1783.

*GOSSE. CAN. NAT.

Philip Henry Gosse, born in Worcester Apr. 6, 1810.

The Canadian Naturalist, a series of conversations on the Natural History of Lower Canada.

“Every kingdom, every province should have its own monographer.” Gilbert White.

London: John Van Voorst, 1840.

*GOSSE. NEWM. ENT.

List of Butterflies taken at Compton in Lower Canada. Pages 137–139 of Newman’s Entomologist. 1841. (The Entomologist, conducted by Edward Newman. London, John Van Voorst, 1840–1842.)

*GOSSE. ANN. NAT. HIST. SER. 2.

On the Insects of Jamaica.

Is contained in the following pages of—

The Annals and Magazine of Natural History, including Zoology, Botany and Geology (being a continuation of the ‘Magazine of Botany and Zoology,’ and of London and Charlesworth’s ‘Magazine of Natural History,’) conducted by Sir W. Jardine (and others). London, R. & J. E. Taylor, 1848.

2d Series, vol. I, p. 109–115; 197–202; 268–270; 349–352; vol. II, p. 109–114; 176–181; 268–273.

Lepidoptera on p. 111–114; 176–181; 268–273. The previous pages are on Coleoptera. On the last cited page it is stated that the article is “to be continued,” but the continuation never appears.

*GRAY. GRIFF. AN. KING.

George Robert Gray, born July 8, 1808; Sen. Assistant in the Zoological Department of the British Museum.

Notices of new genera and species (of Insects).

Contained in

The Animal Kingdom arranged in conformity with its organization, by the Baron Cuvier. The Class Insecta, with Supplementary Additions by Edward Griffith, Edward Pidgeon, and notices of new genera by George Gray. Whittaker, Treacher and Co., London, 1832.

Lepidoptera are on p. 577–680, plates 1–137, vol. II Insecta (vol. XV of whole work.)

*GRONOV. ZOOPH.

Lorenz Theodore Gronov, born 1730; died 1778. Municipal officer in Leyden.

Zoophylacium Gronovianum, Exhibens Animalia quadrupeda, Amphibia, Pisces, Insecta, Vermes, Mollusca, Testacea, et Zoophyta, Quæ in

Museo suo adservavit, examini subjecit, systematice disposuit atque descripsit Laur. Theod. Gronovius, etc. Additis rarissimorum objectorum iconismis. Part I, 1763.

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*GROTE. ANN. N. Y. LYC. NAT. HIST.

Augustus Rudcliffe Grote, in Buffalo, New York.

Annals of the New York Lyceum of Natural History:

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*GROTE. ACAD. NAT. SCI. PHIL.

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*GROTE. BUFF. BULL. I-III. (Or Bull. Buff. Soc. I-III.)

Bulletin of the Buffalo Society of Natural Sciences, Buffalo, (New York). Vol. I, 1873-1874; II, 1874-1875; III, 1875-1877.

The following papers on Lepidoptera, by A. R. Grote, are in the above:

Description of new North American Moths, p. 1-16.

Catalogue of the Sphingidae of North America, p. 17-28.

Catalogue of the Zygaenidae of North America, p. 29-36.

Conclusions drawn from a study of the genera *Hypena* and *Herminia*, p. 37-40.

Contributions to a knowledge of North American Moths, p. 73-94.

A Study of North American Noctuidae, p. 95-128.

Descriptions of Noctuidae principally from California, p. 129-155.

On the North American Geometridae in the Collection of the British Museum, p. 156-160.

Kleiner Beitrag zur Kenntniss einiger Nordamerikanischer Lepidoptera, p. 168-174.

Description of the genera *Argyrophyes* and *Condylolomia* and of a species of *Deuterollyta*, p. 175-177.

Description of a Butterfly new to the Lower Lake Region, p. 178-179.

Description of three genera of Noctuidae, p. 180-182.

On Wallengren's "Lepidoptera Scandinaviae Heterocera disposita et descripta." p. 183, 184.

On the Butterflies of Anticosti, p. 185.

On Eight Species of Noctuidae, p. 190-194.

Determination of Brazilian Sphingidae collected by Mr. Charles Linden, p. 279-281, vol. I, 1873-1874.

List of the Noctuidae of North America, p. 1-77.

On the species of *Helicopis* inhabiting the Valley of the Amazon, p. 106--108.

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New Noctuæ, p. 143, 144.

Notes on American Lepidoptera with Descriptions of Twenty-one New Species, p. 145--163.

Determination of the Species of Moths Figured in the "Natural History of New York," p. 164--168.

On Allied Species of Noctuidæ inhabiting Europe and North America, p. 193--200.

Supplement to the List of North American Noctuidæ, p. 209--223.

Check List of North American Sphinges, p. 224--228.

North American Pyralides, p. 229--232.

On the genus *Agrotis* with Additions to the "List of North American Noctuidæ," p. 301--312.

On Allied Species of Noctuidæ inhabiting Europe and North America, p. 313, 314, vol. II, 1874--1875.

On Noctuidæ from the Pacific Coast of North America, p. 77--87.

On Certain Species of Black-winged Catocala, p. 187--188, vol. III, 1875--1877.

*GROTE. CAN. ENT.

Canadian Entomologist contains the following:

Notice of the Species of *Drepanodes*, p. 114, 115.

On *Thecla Inorata*, *G. & R.*, and *Thecla Falacer*, *Godt.*, p. 165--168, vol. II, 1870.

Descriptions of Lepidoptera from Alabama, p. 101--105; 124--126; 181.

Description of a Species of *Agrotis* from Canada, p. 192, 193, vol. III, 1871.

On a New Checkered *Hesperia*, p. 69, 70.

Descriptions of Lepidoptera from Alabama, p. 101, 102.

Descriptions of *Gelechia Aduncella* and *Gelechia Labradorica*, p. 125, 126.

Descriptions of Two Species of *Anaphora*, p. 136--138.

List of the North American Species of *Catocala*, p. 164--167.

Cirrhophanus Triangulifer, *nov. gen. et sp.*, p. 187.

On Mr. Seudder's Systematic Revision of some of the American Butterflies, p. 214--216.

Note on *Hesperia Communis*, p. 220, vol. IV, 1872.

On Mr. Seudder's Systematic Revision of some of the American Butterflies, p. 62, 63; 143--145.

Notes on *Cosmia Orina*, Guenee, p. 205, 206.

Description of New Deltoids, p. 225--228.

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Note on *Catocala Walshii*, Edwards, p. 233, 234, vol. V, 1873.

Notes on Noctuidæ, p. 13--16.

On Mr. Couper's collections of Lepidoptera made on Anticosti Island in 1873, p. 69--72.

New Canadian Noctuæ, p. 115--118.

On two species of *Agrotis*, allied to *A. Triangulum*, p. 131, 132.

Preliminary Catalogue of the Noctuidæ of California, p. 154--157.

Note on the "List" of 1868, p. 170, 171.

Correspondence, p. 178, 179.

Synonymical Note, p. 180.

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Preliminary Catalogue of the Noctuidæ of California, p. 214--217, vol. VI, 1874.

Note on *Catocala Nebraskæ*, p. 2, 3.

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Correspondence, p. 57--60.

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Correspondence, p. 138, 139.

Description of a New Californian *Agrotis*, p. 144.

Description of *Paehnobia Orilliana*, p. 154, 155.

The effect of the Glacial Epoch upon the distribution of Insects in North America, p. 164--167.

On a Canadian Species of *Agrotis*, p. 172, 173.

On Certain Species of Moths from Florida, p. 173--176.

On *Catocala Verrilliana*, with notes on *Catocala Relicta*, p. 185, 186.

On New Species of *Agrotis*, p. 186--188.

On a new Canadian *Lithophane* and *Scopelosoma*, p. 188, 189.

On *Datana Perspicua*, G. & R., p. 195, 196.

Notes on Certain Species of *Arctia*, p. 196, 197.

On a New *Euchaetes*, p. 200.

On North American Species of *Plusia*, p. 202--205.

On *Scopelosoma* and allied genera, p. 205--207.

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Lepidopterological Observations, p. 221--226, vol. VII, 1875.

On *Chocophora* and allied genera, p. 17, 18.

Descriptions and Notes on Certain Moths, p. 25--29.

On Genera and the Law of Priority, p. 56--58.

New *Pyalids*, p. 98, 99.

On *Copidryas Gloveri* (G. & R.), p. 99, 100.

Larvæ of *Thyreus Abbotii*, p. 100.

On Homoptera and allied forms, p. 107--109.

New Moths, p. 111, 112.

On a New Canadian Bombycid Moth, p. 125, 126.

On Jacob Hübner and his Works on the Butterflies and Moths, p. 131--135.

Notes on *Geometridæ*, p. 152--154.

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Notes on Noctue, p. 188--190.

Notes on Certain Species of Moths, p. 205--208.

On Species of *Catocala*, p. 229--232, vol. VIII, 1876.

Description of a New *Botis* allied to *Flavidalis*, p. 10.

New Noctue, p. 21, 22.

Notes on a collection of Canadian Moths made by Wm. S. M. D'Urban and named by F. Walker, p. 27--29.

Six New Noctuæ, p. 67--71.

Notes and descriptions of New Moths, p. 84--90.

On *Pseudohazis* Hera, (Harris), p. 96.

On a New Canadian Crambus allied to *Conchellus*, p. 101, 102.

New Pyralides, p. 103--107.

A new genus and species of Geometræ, p. 114, 115.

Correspondence, p. 119, 120.

Notice of Mr. Butler's Revision of the Sphingidæ, p. 130--133.

A new *Plusia* allied to *Hochenwarthi*, p. 135, 136.

New Species of Lepidoptera, p. 156--158.

A new Lepidopterous Insect injurious to vegetation, p. 161--163.

Notes on Catocalæ, p. 168--170.

Notes on Noctuidæ, p. 196--200.

Note on Larval Variation, p. 209, 210.

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*GROTE. NOCT. CAL.

Descriptions of Noctuidæ, chiefly from California.

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*GROTE. TRANS. AM. ENT. SOC. I--V.

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*GROTE. REP. PBDY. ACAD. SC.

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*GROTE. STETT. ENT. ZEIT.

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*G.--R. ANN. N. Y. LYC. NAT. HIST.

A. R. Grote and Coleman T. Robinson. The latter, a stock broker in New York, was born in Putnam Co., New York, in 1838, and met his death May 1st, 1872, through injuries caused by being thrown from his carriage. A list of such writings as he was alone responsible for may be found in the *Canadian Entomologist*, vol. V, p. 109, 111. They are almost solely on the Microlepidoptera.

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Contain the following:

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*G.--R. PROC. ENT. SOC. PHIL.

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*G.-R. TRANS. AM. ENT. SOC.

Transactions of the American Entomological Society.

Contain the following:

Descriptions of American Lepidoptera: No. 1, p. 1-30; No. 2, p. 171-192; No. 3, p. 323-360; vol. I, 1867-1868.

Notes on the North American Lepidoptera in the British Museum and described by Mr. Francis Walker, p. 67-88.

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*GUER. ICON. REG. AN.

Felic Edward Guerin-Meneville. Born in Toulon Oct. 12, 1799.

Iconographie du regne animal de G. Cuvier, ou représentation d'après nature de l'une des espèces les plus remarquables et souvent non encore figurées, de chaque genre d'animaux; pouvant servir d'atlas à tous les traités de Zoologie. Paris, J. B. Bailliere, 1829-1844.

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*HAGEN. BIB. ENT.

Dr. Hermann August Hagen. Born in Königsberg May 30, 1817; now in Cambridge, Massachusetts.

Bibliotheca Entomologica. Die litteratur über das ganze gebiet der entomologie bis zum Jahre 1862. Von Dr. Hermann August Hagen in Königsberg. Leipzig, 1862.

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A work indispensable to every entomologist.

*HAGEN. CAN. ENT.

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*HARRIS. AGASS. LAKE SUPERIOR.

Thaddeus William Harris, M. D., in Cambridge, Massachusetts. Died in 1856. His Collection is in the Boston Museum of Natural History.

Descriptions of some species of Lepidoptera from the Northern Shores of Lake Superior.

P. 386-394, & t. 7, in, Lake Superior; its physical character, vegetation, and animals, compared with those of other and similar regions. By Louis Agassiz. With a Narrative of the tour by J. Elliot Cabot, and contributions by other scientific gentlemen. Boston: Gould, Kendall and Lincoln, 1850.

*HARR. AM. JNL. SC.

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HARR. BOST. CULT.

Boston Cultivator.

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HARR. DYG. HORT.

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*HARRIS. HITCH. REP. GEOL. MIN., ETC., MASS.

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HARR. HOV. MAG.

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*HARRIS. INS.

A Report on the Insects of Massachusetts which are injurious to vegetation, published agreeably to an order of the Legislature, 'by the Commissioners of the Zoological and Botanical Survey of the State.' Cambridge, 1841.

A Second Edition was issued by the author in 1842, and another in 1852.

*HARRIS. INS., FLINT'S ED.

A later revised, improved and illustrated edition of the above, with the title as follows:

A Treatise on some of the Insects Injurious to Vegetation. By Thaddeus William Harris, M. D. A new Edition, enlarged and improved, with additions from the author's manuscripts and original notes. Illustrated by engravings drawn from nature under the supervision of Professor Agassiz. Edited by Charles L. Flint, Secretary of the Massachusetts State Board of Agriculture. Boston, 1862.

640 pages of text, eight finely coloured steel plates and numerous excellent wood cuts representing insects of various orders, and is a book that no American Entomologist can well be without.

HARR. MASS. REP.

Massachusetts Agricultural Repository and Journal contains :

Upon the Natural History of the Salt Marsh Caterpillar (*Aretia Pseuderminaea*), vol. VII, p. 322--331, 1823.

HARR. MASS. PLOUGH.

Massachusetts Ploughman.

Canker Worms (*Anisopteryx Vernata*), X, No. 8, 1850; No. 33, 1851.

*HARRIS. NEW ENG. FARMER.

New England Farmer.

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American turnip butterfly (*Pontia Oleracea*), VII, p. 402, 1829.

Aegeria pyri, *Ichneumon hordei*, IX, p. 1, 2, 1830.

On the Wheat Insects (*Calandra granaria*, *Tinea granella*, *Oecophora cerealella*), XIX, p. 300, 1841.

On the Squash vine destroyer (*Aegeria cucurbitae*), XX, p. 260, 1842.

On the Apple Worm, Plum Grub, (*Carpocapsa pomonella*, *Conotrachelus nenuphar*) XXII, p. 13, 1843.

On *Clisiocampa sylvatica*, a new depredator of the orchard; the Wheat worm, etc., XXII, p. 412, 1844.

Injurious insects (*Conotr. nenuphar*, *Carpocapsa pomonella*, Aphides,

Clisio. americana, Anisopt. *vernata*, *Macr. subspinosus*.) II, ser. 2, p. 252, 1850.

Canker-Worms, (*A. Vernata*.) IV, ser. 4, p. 155, 156, 1852.

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HARR. PR. FAR.

Prairie Farmer.

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*HERBST. NAT. SCHMETT. I–XI.

Johann Friederich Wilhelm Herbst, Preacher in Berlin, and *Carl Gustav Jablonsky*. Herbst was born in Petershagen Nov. 1, 1743; died in Berlin Nov. 5, 1807. Jablonsky was born in 1756; died May 25, 1787.

Natursystem aller bekannten in und ausländischen Insekten als eine Fortsezzung der von Büffonschen naturgeschichte, nach dem System des Ritters Carl von Linne bearbeitet Carl Gustav Jablonsky.

Vol. I, 1783; II, 1784; III, 1788.

Jablonsky dying before the completion of the last mentioned vol. (III), it and the remaining eight were continued and finished by Herbst.

Vol. IV, 1790; V, 1792; VI, 1793; VII, 1794; VIII, 1796; IX, 1798; X, 1800; XI, 1804.

The figures of Exotic Lepidoptera in the eight volumes edited solely by Herbst are nearly all fac-similes of Cramer's and represent nearly all the diurnals of that author excepting the Hesperidæ. The above does not apply to the figures in the first volumes by Jablonsky. In the eleven volumes, besides an antique frontispiece and a plate of Collecting Instruments, etc., there are 327 plates of coloured figures. There are many misprints among names and references, and the errors of previous authors are repeated.

*HEW. ANN. & MAG. NAT. HIST.

William Chapman Hewitson, born in 1806; died at his residence, Oatlands, Walton-on-Thames, Surrey, England, May 28, 1878; was interred in the little country churchyard about half a mile from his home. His collection, probably the finest and largest extant of Diurnal Lepidoptera, was bequeathed to the British Museum on the condition that it was to remain intact for 21 years.

The Annals & Magazine of Natural History (including Zoology, Botany and Geology).

First series, vol. I–XX, 1838–1847; Second series, vol. I–XX, 1848–1857; Third series, vol. I–XX, 1858–1867; Fourth series, vol. I–XX, 1868–1877.

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*HEW. ENT. MON. MAG.

The Entomologist's Monthly Magazine.

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Description of a new species of *Epitola*, (Lycenad.) p. 86.

Curious occurrence of the Wood Leopard, p. 96.

Descriptions of new species of Lepidoptera Rhopalocera from old Calabar and Ecuador, p. 97-99.

Descriptions of two new species of Lepidopt. Rhopalocera, p. 177, 178.

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Description of nine new species of Lycaenidae from the west coast of Africa, p. 122-125.

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Note on Rhopalocera from Africa, p. 16.

Descriptions of new Lycaenidae from West Africa, p. 36.

Description of new species of Butterflies, p. 56.

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Descriptions of new species of Lycaenidae from South America, p. 104-107.

Note on the Capture of *Papilio Antimachus*, p. 113.

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Note on Mr. Buxton's Collections, p. 57.

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Descriptions of three new species of Butterflies from Delagoa Bay, p. 81-83.

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HEW. DESCRIP. HESP.

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*HEW. ILL. EX. BUTT.

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Vol. I, 1851-1857; II, 1857-1861; III, 1862-1866; IV, 1867-1871.

One of the grandest works ever published on Lepidoptera.

*HEW. ILL. DIUR. LEP.

Illustrations of Diurnal Lepidoptera. London: Van Voorst, 1867-1877. Supplement in 1869.

*HEW. JNL. LIN. SOC. LOND.

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*HEW. PROC. ZOOL. SOC. LOND.

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*HEW. ZOOL. LOND.

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*H-S. BERL. ENT. ZEIT.

Gottlieb August Wilhelm Herrich-Schaeffer, Doctor of Medicine. Born in Regensburg 1799; died at Ratisbon Apr. 14, 1874.

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*H-S. CORR.-BLATT, ZOOL. MIN. GES.

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*H-S. IND. SYST. REG. CORR.-BLATT.

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*H-S. PRODR. LEP. REG. CORR.-BLATT.

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*H--S. SCHMETT. CUBA, CORR.--BLATT ZOOL. MIN. GES.

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*H--S. SAMM. AUSSEUR. SCHMETT. (OR EXOT. LEP.).

Sammlung neuer oder wenig bekannter aussereuropäischer Schmetterlinge. Regensburg, 1850--1858.

1 vol. 4to. 120 fine coloured plates.

*H--S. SCHMETT. EUR. (OR EUR. SCHMETT.) I--VI.

Systematische Bearbeitung der Schmetterlinge von Europa, zugleich als Text, Revision und Supplement zu Jakob Hübner's Sammlung europäischer Schmetterlinge von Dr. G. A. W. Herrich--Schäffer. Regensburg.

Vol. I, 1843--1856, Diurnæ; II, 1845, Sphingidæ, Bombycidæ, Noctuidæ; III, 1847, Phalaenidæ; IV, 1849, Microlep.; V, 1853--1855, Microlep.; VI, 1843--1856.

Vols. V and VI I have not been able to examine.

Published as supplement and revision to Hubner's Sammlung Europaischer Schmetterlinge.

*H--S. STETT. ENT. ZEIT.

Entomologische Zeitung herausgegeben von dem Entomologischen Vereine zu Stettin.

Bezüglich der Gastropacha Arbusculæ, p. 55--57, 1861.

Neue Schmetterlinge aus dem "Museum Godeffroy" in Hamburg, p. 65--80, 1869.

*H--S. ZOOL. LOND.

The Zoologist, London.

Notes on new or little known Macrolepidoptera from England, p. 8291--8295, vol. XX, 1862.

*HORSF.--MOORE. CAT. LEP. MUS. E. I. C.

Dr. Thomas Horsfield, London. Spent 1813-1816 in Banka, Sumatra and Java. Died in London.

Frederick Moore, in London.

Catalogue of the Lepidopterous Insects in the Museum of the Hon. East-India Company. Printed by order of the Court of Directors. London, Allen.

Vol. I, 1857; II, 1858--1859.

*HUEB. BEITR.

Jacob Hübner, a designer in a cotton-print factory. Born at Augsburg June 20, 1761; died Sept. 13, 1826.

Beiträge zur geschichte de Schmetterlinge, Augsburg.

Two vols. Vol. I, 1786-1789; II, 1790. With 16 good coloured plates in each.

*HUEB. EUR. SCHMETT.

Sammlung Europäischer Schmetterlinge. Augsburg, 1805--1832.

In 5 vols. 4to. Vol. I, Papiliones; II, Sphinges, Bombyces; III, Noctuae; IV, Geometrae; V, Pyralides, Tortrices, Tineae, Alucitae.

Contains 700 excellent coloured plates.

*HUEB. EUR. SCHMETT.

Geschichte europäischer Schmetterlinge gesammelt von *Jacob Hübner* in Augsburg, 1806--1834.

In 3 vols. 4to. Vol. I, Papiliones, Sphinges, Bombyces; II, Noctuae; III, Geometrae, Pyralides, Tortrices, Tineae, Alucitae.

406 excellently executed coloured figures, all Larvæ, Pupæ and food-plants.

In my present Catalogue the above work has been cited along with the preceding (Eur. Schmett.) and further indicated by the word "Lar." (Larva) following No. of vol. or fig.

*HUEB. EX. SCHMETT.

Sammlung Exotischer Schmetterlinge errichtet von *Jacob Hübner*. Augsburg, 1806--1824.

In 3 vols. 4to.

Contains 439 coloured plates; these plates are beautifully drawn and coloured true to nature

*HUEB. IND. EX. LEP.

Index exoticorum Lepidopterorum in foliis 244 a *J. Hübner*o hactenus effigiatorum. Augustae Vindelicorum, 1821.

*HUEB. VERZ. BEK. SCHMETT.

Verzeichniss bekannter Schmetterlinge. Verfasst von *Jacob Hübner*. Augsburg, 1816.

In German. 431 pages, exclusive of Index.

*HUEB. ZUTR. EXOT. SCHMET. (& HUEB.--GEY., EUR. SCHMETT.).

Zuträge zur Sammlung exotischer Schmetterlinge, bestehend in Bekundigung einzelner Fliegmuster neuer oder rarer nicht europäischer Gattungen. Augsburg, 1818--1823; 1825--1832.

Continued by *Carl Geyer*, 1832--1837.

170 fine coloured plates.

HUFN. BERL. MAG.

Hufnagel.

In the Berlinisches Magazine:

Tabellen von den Tagvögeln der Gegend Berlin, p. 54--90.

Abendvögeln, p. 174--195.

Nachtvögeln, p. 391--437, vol. II, 1766.

Nachtvögeln, p. 202--215; 279--309; 393--426, vol. III, 1767.

Fortsetzung der Tabellen von den Nachtvögeln, p. 504--527; 599--626, vol. IV, 1768.

*HUMPH., WEST. BRIT. BUTT.

H. N. Humphreys.

British Butterflies and their transformations, arranged and⁷illustrated in a series of plates by H. N. Humphreys, Esq., with descriptions by J. O. Westwood, Esq. London, Will. Smith, 1841. (2d Ed., 1848.)

One vol. 4to. 42 coloured plates.

*ILL. MAG. INS.

Johann Carl Wilhelm Illiger. Born in Braunschweig 1775; died in Berlin 1815. Director of the Zoological Museum of Berlin.

Magazin für Insektenkunde. Braunschweig.

Vol. I, 1801-1802; II, 1803; III, 1804; IV, 1805; V, 1806; VI, 1807.

*KIRBY. FAUN. BOR. AM.

William Kirby, Preacher, born in Winesham Hall 1759; died in Barham, near Ipswich, July 4, 1850.

Fauna boreali--Americana, or the Zoology of the Northern Parts of British America, containing descriptions of the objects of natural history collected on the late northern land expeditions, under command of Captain Sir John Franklin, by John Richardson. Part IV. The Insects by W. Kirby. London, Longman, 1837.

Lep., p. 286-308, plates III, IV.

*KIRBY. MAN. EUR. BUTT.

W. F. Kirby, Naturalist in the Museum of the Royal Dublin Society. Dublin, Ireland.

A Manual of European Butterflies. On the plan of Stainton's "Manual of British Butterflies and Moths." London, 1862.

Containing descriptions of all the known Species and Larvæ; with times of appearance, Tables of Genera, Appendices of Geographical Distribution, Synonymy, and Bibliography, and a copious Index.

*KIRBY. CAT.

A Synonymic Catalogue of Diurnal Lepidoptera. London, 1871.

Pages 690. Contains names and synonyms of all the Rhopalocerous Lep. described to that time.

Supplement. March, 1871,--June, 1877.

Contains all species described after issue of Catalogue of 1871, and additional citations of numerous species.

*KIRTLAND. SILL. JNL. SC., 2D ED.

Jared P. Kirtland, Doctor of Medicine. Born at Wallingford, Connecticut, Nov. 10, 1793; died near Cleveland, Ohio, Dec. 11, 1877.

American Journal of Science and Art, Ed. 2.

Method of preserving Lepidoptera, p. 286, 287.

A new Libythea and Macroglossa, p. 336-338, vol. XIII, 1852.

Localities and habits of some insects, p. 444, vol. XVII, 1854.

*KIRTLAND. PROC. ACAD. NAT. SC. PHIL.

Proceedings of the Academy of Natural Sciences of Philadelphia.

On the Larva of *Thyreus Abbotii*, p. 148, vol. IX, 1857.

*KIRTLAND. PROC. CLEV. ACAD. SC.

Proceedings of the Cleveland Academy of Natural Science. 1845--1859. Published by a gentleman of Cleveland, Ohio, 1874.

Diurnal Lepidoptera of Northern and Middle Ohio, p. 17--25.

Vanessa Furcillata. Extract from a Letter to Prof. Kirtland, read before the Academy and dated Cambridge, March 15, 1854, p. 94--96.

Description of a new species of *Libythea* and of *Macroglossa*, p. 171--173.

Letters from Dr. Harris, p. 189--194.

*KNOCH. BEITR. INS. I--III.

August Wilhelm Knoch, Professor in Braunschweig. Born in Braunschweig June 3, 1742; died June 2, 1818.

Beiträge zur Insectengeschichte. Leipzig, Schwickert.

Part I, 1781; II, 1782; III, 1783.

*LEACH. ZOOL. MIS.

William Elford Leach, Curator at the British Museum. Died of cholera at Genoa Aug. 25, 1836.

The Zoological Miscellany, being descriptions of new or interesting animals, illustrated with coloured figures, drawn from nature by R. P. Nodder. "Plus nos noms sont générale plus nos idées sont incomplètes." London, McMillan.

3 vols. Vol. I, II, 1815; III, 1817.

*LAMARCK. HIST. ANIM. SANS VERT.

Jean Baptiste Pierre Antoine de Monet, Chevalier de Lamarck. Born in Picardy Aug. 1, 1744; died in Paris Dec. 19, 1829. Prof. of Zoology in the Jardin des Plantes. He was blind for a number of years previous to his death.

Histoire Naturelle des Animaux sans vertèbres. Paris, Verdière, 1815--1822.

7 vols. The Insects in vol. III, 1816, vol. IV, 1817.

*LATR. HIST. NAT. CRUST. ET INS.

Pierre Andre Latreille. Born in Brives, province of Limosin, Nov. 29, 1762. Died in Paris Feb. 6, 1833. His tomb is Pere la Chaise.

Histoire naturelle, générale et particulière. Des Crustacés et des Insectes. Ouvrage faisant suite aux oeuvres de Leclerc de Buffon et partie du Cours complet d'Histoire naturelle rédigé par C. S. Sonnini, par P. A. Latreille. Paris, Dufart.

Vol. I--IV, 1802; V, VI, 1803; VII--XII, 1804; XIII, XIV, 1805.

Lep. in vol. XIV.

*LATR. GEN. CRUST. ET INS.

Genera Crustaceorum et Insectorum secundum ordinem naturalem in familias disposita, iconibus exemplisque plurimis explicata. Parisiis et Argentorat., Amand Koenig.

Vol. I, 1806; II, III, 1807; IV, 1809.

*LATR. ENC. METH. IX.

Encyclopédie Méthodique IX, 1823.

See "Godt., Enc. Meth. IX Sup."

*LED. VERH. ZOOL. BOT. VER.

Julius Lederer, Merchant in Vienna. Died in 1870.

Verhandlung des Zoologisch--Botanischen Vereins in Wien. 1851--1876.

Die Europäischen Lepidopteren:

1. Abtheilung Die Rhopaloceren, p. 14--54.

2. Abtheilung Die Heteroceren, p. 65--126.

Ueber *Gynanecycla canella*, und eine ihr in form und zeichnung ähnliche neue Art *Spermatophthora Hornigii*, p. 132, 133, vol. II, 1852.

Die Europäischen Lepidopteren. Die Spanner, p. 165–270.
Lepidopterologisches aus Sibirien, p. 351–394, vol. III, 1853.

Grapholitha Hornigiana, n. sp., p. 77–80.

Weiterer Beitrag zur Schmetterlings-Fauna des Altai-Geberiges in Sibirien, p. 97–121.

Beitrag zu einer Schmetterlings-Fauna von Cypern, Beirut u. einem Theile Kleinasiens, p. 177–254.

Psyche Ecksteinii, n. sp., p. 755, 756, vol. V, 1855.

*LED. BERL. ENT. ZEIT.

Berliner Entomologische Zeitschrift.

Lepidopterologische Mittheilungen; *Psyche atra*; Ochsenheimersche gattung *Notodonta*; Europäischen *Cymatophoriden*; *Boletobia fuliginaria*, p. 353–360, vol. II, 1858.

Celonoptera *Mirificaria* ein neue Europäischer Spanner, p. 59, 60, vol. VI, 1862.

LED. NOCT. EUR.

Die Noctuiden Europas, mit zuziehung einiger bisher meist dazugezählten Arten des asiatischen Russlands, Kleinasiens, Syriens u. Labradors. Wien., Gerold, 1857.

*LED. WIEN. ENT. MON.

Wiener Entomologische Monatschrift. Verantwortliche Redacteurs: Julius Lederer und Ludwig Miller. Wien. Vol. I–VIII, 1857–1864.

Ueber die *Lycaeniden*-gattungen der europäischen Fauna, p. 25–32.

Die Körperlichen Auszeichnungen der europ. Hesperien, p. 75–80.

Vier neue europäische Schmetterlinge, p. 80–83.

Nachtrag zur Schmetterlings-Fauna von Beirut, p. 90–95; 97–102, vol. I, 1857.

Erebia Arcte F. wieder aufgefunden, p. 36, 37.

Noch einige syrische Schmetterlinge, p. 135–152.

Für die Wiener-Fauna neue Schmetterlinge, p. 288–360, vol. II, 1858.

Classification der europäischen Tortricinen, p. 118–126; 141–155; 241–255; 273–288; 328–346; 366–389.

Ein paar Worte über Dr. Herrich-Schäffer's Kritik meiner "Noctuiden Europas" in Regensburger Korrespondenzblatte 1858, p. 186–191; 193–199, vol. III, 1859.

Ueber Guenée's *Uranides* u. *Phalénites*, p. 121–128; 150–157; 182–187.

Abwehr eines Angriffes mit geschlossenem Visir, p. 157–160.

Zukunfts-Styl., p. 187–192.

Albert Kindermann (Sohn) Necrolog., 251–255.

Lepidoptera, p. 284, 285.

Die Raupen von *Agrotis lucipeta* S. V. und *Eccrita ludicra* Hbn., p. 310–313.

Cremor Tartari für Herrn Dr. O. Staudinger, p. 318–328.

Traurige Folgen der Curpfuscheri, p. 402–403, vol. IV, 1860.

Ueber anerkennenswerthe Unpartheilichkeit moderner Kritik, p. 112--136.

Ueber Albert Kindermann's letzte lepidopterologische Ausbeute, p. 144--155.

Nemeophila Metelkana, n. sp., p. 162, 163, vol. V, 1861.

Nur logisch! p. 94--96.

Replik., p. 157, 158, vol. VI, 1862.

Verzeichniss der von H. Joh. und Frau Ludmilla Haberhauer 1861 und 1862 in Bulgarien und Rumelien gesammelten Lepidopteren, p. 17--27; 40--47.

Ein Zwitter von *Bombyx Pini*, p. 28.

Beitrag zur Kenntniss der Pyralidinen, p. 243--280; 331--378; 379--502.

Bücher-Anzeigen, p. 320, vol. VII, 1863.

Zur Lepidopteren-Fauna von Imeritien und Grusien, p. 165--172, vol. VIII, 1864.

LEE. COLOURED SPEC. ILL. ETC.

James Lee, of Hammersmith.

Coloured Specimens to illustrate the natural history of butterflies. London, 1806.

*LEFBR. ANN. SOC. ENT. FR.

Alexander Lefebvre, born in Paris 1797.

Annales de la Societè Entomologique de France, vol. V, 1836.

Has the following papers on Lepidoptera:

Description de quelques Lépidoptères nocturnes hyperboréens, p. 389--401.

Description d'une nouvelle espèce de Coliade, p. 383--387.

*LEWIN. PAP. GT. BRIT.

John William Lewin.

The Papilios of Great Britain systematically arranged, accurately engraved, and painted from nature, with the natural history of each species, from a close application to the subject and observations made in different counties of this kingdom; as well as from breeding numbers from the egg, or caterpillar, during the last thirty years; the figures engraved from the subjects themselves by the author, W. Lewin, and painted under his immediate direction. London, Johnson, 1795.

In English and French. 46 coloured plates of Lepidoptera.

*LINN. FAUN. SUEC.

Carl von Linné, born May 24, 1707; died Jan. 10, 1778.

Fauna Suecica sistens Animalia SUECICÆ Regni; quadrupedia, aves, amphibia, pisces, insecta, vermes, distributa per classes, & ordines, genera & species, cum Differentiis Specierum, Synonymis Autorum, Nominibus Incolarum, Locis Habitationum, Descriptionibus Insectorum. Stockholmæ, Laurentii Salvii, 1746.

Another and enlarged edition was published in 1761.

Editio altera auctior. Stockholmæ, Laurentii Salvii, 1761.

*LINN. SYST. NAT. X.

Systema Naturæ Per Regna tria naturæ Secundum classes, ordines,

genera, species, Cum characteribus, differentiis, synonymis, locis. Ed. Decima Reformata. Holmiae, Laurentii Salvii, 1758.

This is the first edition of the *Systema Naturae* which contains descriptions of species with the addition of the synonyms.

The next edition was published in 1760:

Ad editionem Decimam Reformatam Holmiensem. Halae Magdeburgicae. Iohannes Ioachimus Langius. MDCCLX.

*LINN. JOH. AMEN. ACAD.

Amoenitates Academicæ, Seu Dissertationes variæ Physicæ, Medicæ, Antehæ seorsim editæ nunc collectæ et auctæ cum tabulis æneis. Lugduni Batavorum Haak.

Vol. I–VI, 1749–1763.

Insects in vol. VI, p. 384–415.

*LINN. MUS. LUD. ULR.

Museum S:æ R:æ M:tis Ludovicæ Ulricæ Reginae Svecorum, gothorum, Vandalorumque &c. &c. &c. In quo Animalia Rariora, Exotica, Imprimis Insecta & Conchilia describuntur & determinantur. Holmiæ 1764.

Part I, 462 pages, contains descriptions in Latin of Insects of all orders from various parts of the world. Part II, p. 463–720, is on Conchology.

*LINN. SYST. NAT. I, 2.

Systema Naturæ, Tom. I, Pars. II. Editio Duodecima Reformata. Holmiæ 1767.

P. 533–1327, Latin descriptions of Insects of all orders.

*LINN. MANT.

Mantissa Plantarum Altera Generum editionis VI & Specierum editionis II. Holmiae, Laurentii Salvii, 1771.

Insects on p. 529–543. Lepid. 534–540.

*LINT. 23D, 24TH AND 26TH REP. N. Y. STATE CAB. NAT. HIST.

J. A. Lintner, of the New York State Museum of Natural History, Albany, New York.

Entomological Contributions :

Appendix D & E, p. 137–222 of the 23d Annual Report of the New York State Cabinet of Natural History, for the year 1869. Two lith. plates.

Also printed separately, p. 1–90. Albany, Weed, Parsons and Company, 1872.

Entomological Contributions No. II :

P. 110–170 of the 24th Report N. Y. State Mus. for 1870.

Separately printed, p. 1–66. Albany: The Argus Company, Printers, 1872.

Entomological Contributions No. III :

P. 117–119 of the 26th Report N. Y. State Mus. for 1872.

Separately printed. Albany: The Argus Company, Printers, May, 1874.

Two photographic plates of 10 species of *Cucullia*.

Entomological Contributions No. IV :

Printed in advance of the Report. Albany, Weed, Parsons and Company, June, 1878. P. 1–144.

*LINT. PROC. ENT. SOC. PHIL.

In Proceedings of the Entomological Society of Philadelphia are:

Metamorphoses of *Ceratonia quadricornis*, Harris, p. 286–293, vol. I, 1862.

Notes on some of the Diurnal Lepidoptera of the State of New York, with descriptions of their Larvæ and Chrysalides, p. 50–64.

Notes on some Sphingidae with descriptions of their larvæ and pupæ, p. 645–672, vol. III, 1864.

*LINT. TRANS. AM. ENT. SOC.

Transactions of the American Entomological Society contains:

Description of a new species of *Grapta*, and notes on *G. interrogationis*, p. 313–319, vol. II, 1869.

On *Graptæ Interrogationis* and *Fabricii* of Edwards, p. 197–204, vol. III, 1870.

*LINT. CAN. ENT.

In the Canadian Entomologist are the following:

Hypena Scabra (Fabr.) and *H. Erectalis*, Guen., p. 81, vol. V, 1873.

On *Lycaena Neglecta*, Edw., p. 122, 123.

On *Orthosia Ralla*, Gr. & Rob., p. 128, 129, vol. VII, 1875.

On *Catocala Pretiosa*, n. s., p. 121, 122, vol. VIII, 1876.

On a new species of *Cossus*, p. 129, 130, vol. IX, 1877.

*LINT. BUFF. BULL.

In Bulletin of the Buffalo Soc. of Nat. Sc. is the

Description of a new species of *Calocampa*, p. 188, 189, vol. II, 1874.

LOCHE (DE). MEM. ACAD. TUR.

Conte Francois Moury De Loche, born in Aix les Bains Major-General in Sardinia.

Papillons du Piémont nouvellement connus. (Pap. Polychaon, Phoebus, Themistocles, Peas, Seyta, Gardetta, Merope, Bertholis, Xenophon).

Vol. XI, p. 139–150 of Mémoires de l'Acad. de Turin, 1801.

*LUC. PAP. EUR.

Hippolyte Lucas.

Histoire naturelle des Lépidoptères d'Europe, ouvrage orné de près de 400 Figures peintes d'après nature par A. Noel. Paris, Panquet, 1834.

79 coloured plates.

A second edition in 1845.

*LUCAS. LEP. EXOT.

Histoire naturelle des Lépidoptères exotiques. Paris, 1835.

Contains 80 coloured plates of Lep. from various parts of the world.

*LUCAS. REV. ZOOL.

Description de nouvelles espèces de Lépidoptères appartenant aux collections entomologiques du Musée de Paris.

In Revue et Magazin Zoologie. Paris. Sér 2, IV, p. 128–141; 189–198; 290–300; 324–343; 422–432, 1852. V, p. 310–322, 1853.

*LUCAS. SAGRA HIST. NAT. CUBA.

Historie Physique et politique et naturelle de l'Isle de Cuba, Animaux articulés. Paris, Bertrand, 1857.

The Lepidoptera by Lucas in above volume comprise pages 475-750, and illustrated in the atlas with four coloured plates (14-17).

MARTYN. PSYCHE.

Thomas Martyn. Born in Chelsea 1735; died in Patenhall, Bedford, June 3, 1825.

Psyche: figures of nondescript Lepidopterous Insects or rare Moths and Butterflies from different parts of the World. London, 1797.

Hagen says, Bib. Ent. 523, according to Westwood but 10 copies were published.

*MAYNARD. AM. NAT. VII.

C. J. Maynard.

American Naturalist has the following:

A new species of Butterfly from Florida, p. 177, 178, 1873.

*MEAD. CAN. ENT.

Theodore L. Mead, in New York.

In the Canadian Entomologist are the following:

Musical Larvae, p. 47, vol. I, 1868.

Extension of habitat of *Pieris Rapae*, Linn., p. 36.

Larva of *Sesia diffinis*, p. 157, 158, vol. II, 1869.

Generic Nomenclature, p. 18.

Notes on Collecting, p. 78-80, vol. V, 1873.

Interesting Captures, p. 39, 40.

Notes upon some Butterfly Eggs and Larvae, p. 161-163, vol. VII, 1875.

Notes on some of the genera of Mr. Scudder's "Systematic Revision," p. 232-238, vol. VIII, 1876.

*MEAD. WHEELER'S REP. V.

Report upon the Collections of Diurnal Lepidoptera made in portions of Colorado, Utah, New Mexico, and Arizona, during the years 1871, 1872, 1873, and 1874, with notes upon all species known to inhabit Colorado, by Theodore L. Mead; and a list of all species collected by W. H. Edwards.

Being chap. VIII and p. 739-794 of vol. V of the

Report upon Geographical and Geological Explorations and Surveys west of the one-hundredth meridian in charge of First-Lieut. Geo. M. Wheeler, Corps of Engineers, U. S. Army, under the direction of Brig.-Gen. A. A. Humphreys, Chief of Engineers, U. S. Army. Washington: Government Printing Office, 1875.

*MEIGEN. HANDBUCH.

Johann Wilhelm Meigen, born 1763; died July 11, 1845.

Handbuch für Schmetterlingsliebhaber besonders für Anfänger im Sammeln. Aachen, La Ruelle, 1827.

*MEIGEN. EUR. SCHMETT.

Systematische Beschreibung der europäischen Schmetterlinge. Aachen und Leipzig, vol. I-III, 1829-1832.

*MEN. NOUV. MEM. SOC. MOSC.

E. Menetries, Director of Entomology in the St. Petersburg Museum. Died in 1861.

Notice sur quelques Lépidoptères des Antilles avec la description de plusieurs espèces nouvelles.

Being pages 115-133 of

Nouveaux Mémoires de la Société Impériale des Naturalistes de Moscou. Dédiés à S. M. l'Empereur Nicolas I. Tome III. Formant le Tome IX de la collection avec 32 planches. Moscou, de l'Imprimerie d'Auguste Semen, Imprimeur de l'Académie Impériale Médico-Chirurgicale, 1834.

*MEN. CAT. MUS. PETR. LEP.

Enumeratio corporum animalium Musei imperialis Academiae Scientiarum Petropolitanae. Classis Insectorum. Ordo Lepidopterorum. Petropoli.

Part I, 1855, 6 coloured plates. Part II, 1857, 8 plates.

*MERIAN. EUR. INS.

Maria Sibylla Merian. Born April 12, 1647, in Frankfurt-on-Main; died Jan. 13, 1717, in Amsterdam. Lived in Surinam from 1699 to 1702, where she collected the material for her great work. The drawings of the various insects were made and the plates coloured by herself.

De Europische Insecten, Naauwkeurig onderzocht, na 't leven geschildert, en in print gebragt door Maria Sibylla Merian: Met een Korte Beschryving, war in door haar gehandelt word van der Rupsen begin, Voedzel en wonderbare Verandering, en ook vertoont word De Oorspronk, Spys en Gestalt-verwisseling, de Tyd, Plaats en Eigenschappen den Rupsen, Uiltjes, Vligen en andere diergelyke bloedeloose Beesjes. Hier is nog bygevoegt Een naauwkeurige Beschryving van de Planten, in dit Werk voorkomende; en de Uitlegging van agtien nieuwe Platen, door dezelve Maria Sibylla Merian geteekent, en die men na haar dood gevonden heeft. In't Frans beschreeven door J. Martrat, Medicinæ Doctor, En door een voornaam Liefhebber in 't Uederduits vertaalt. Tot Amsterdam, by J. F. Bernard, 1730.

Large folio. 84 p. text, in Hollandish, 184 coloured copper-plates; always four plates on one sheet.

Also in French:

Histoire des Insectes de l'Europe, dessinée d'après nature & expliquée par Marie Sibille Merian: Oul'on traite de la Generation & des différentes Metamorphoses des Chenilles, Vers, Papillons, Mouches & autres Insectes; & des Plantes, des Fleurs & des Fruits dont ils se nourrissent, Traduite du Hollandois en François Par Jean Marret, Docteur en Medicine; Augmentée par le meme d'une Description exacte des Plantes, dont il est parlé dans cette Histoire; & des Explications de dix-huit nouvelles Planches, dessinées par le meme Dame, & qui n'ont point encore paru. Ouvrage qui contient XCIII Planches. A Amsterdam, Chez Jean Frederic Bernard, 1730.

To the plates of this work is the additional title:

Histoire Generale des Insectes de l'Europe par Mad. De Merian.

*MERIAN. INS. SUR.

Maria Sybilla Meriaen Over de Voortteeling en Wonderbaerlyke Veranderingen der Surinaemsche Insecten, waer in de Surinaemsche Rupsen en Wormen, met alle derzelver Veranderingen, naer het leeven afgebeeldt, en beschreeven worden; zijnde elk geplaest op dezelfde Gewassen, Bloemen, en Vruchten, daer ze op gevonden zijn; Beneffens de Beschryving dier Gewassen. Waer in ook de wonderbare Padden,

Hagedissen, Slangen, Spinnen, en andere Zeltzame Gediertens worden vertoont, en beschreeven. Alles in Amerika door den zelve M. S. Meiraen naer het leeven, en leevens grootte Geschildert, en me in 't Koper overgebracht. Benevens een Aenhangsel van de Veranderingen van Visschen in Kikvorschen, en van Kikvorschen in Visschen. t'Amsterdam. By Johannes Ooslerwyk, Bockverkoper op den Dam in de Bockzael: Alwaer dit werk, als ook de Europeesche Insecten in quarto van dezelve Juffrouw Meriaen naer 't leeven geschildert en afgezet te bekomen zyn. 1719.

Large folio. 72 pages text in Hollandish, 72 coloured copper-plates, and an illuminated frontispiece.

Another edition in Latin and French with following title:

Marie Sibillie Merian Dissertatio de Generatione et Metamorphosisibus Insectorum Surinamensium: In qua, præter Vermes & Erucas Surinamenses, earumque admirandam metamorphosin, Plantæ, flores & fructus, quibus vescuntur, & in quibus fuerunt inventæ, exhibentur. His adjunguntur Bufones, Lacerti, Serpentes, Araneæ, alioque admiranda istius regionis animalicula, omnia manu ejusdem Matronæ in America ad vivum accuratè depicta & nunc æri incisa. Accedit Appendix Transformationum Piscium in Ranas, & Ranarum in Pisces. Hæge Comitum, Apud Petrum Gosse 1726.

The same title also repeated in French.

Large folio. 68 pages text. 72 coloured copper-plates.

The above two editions I have examined myself. The first edition of 1705 I have never seen. It has 60 pages text and 60 copper-plates, mostly coloured by Mad. Merian herself, and bears the title—

Metamorphosis Insectorum Suranamensium. In qua Erucæ ac Vermes Suranamensis, cum omnibus suis Transformationibus, ad vivum delineantur et describuntur, singulis eorum in Plantas, Flores et Fructus collocatis, in quibus reperta sunt; tunc etiam Generatio Ranarum, Bufonum rariorum, Lacertarum, Serpentum, Araneorum, et Formicarum exhibetur; omnia in America ad vivum naturali magnitudine picta atque descripta per Mariam Sibyllam Merian. Amstelodami, Sumtibus auctoris venduntur et apud Gereordum Valk, 1705.

(Hagen's Bibl. I, p. 535.)

MEYER-DUER. SCHMETT. SCHWEIZ.

L. R. Meyer-Duer, in Burgdorf, Switzerland.

Verzeichniss der Schmetterlinge der Schweiz. I Tagfalter; mit Berücksichtigung ihrer Klimatischen Abweichungen nach horizontaler und vertikaler verbreitung bearbeitet, 1852.

MILL. BRIT. ENT.

Simeon Werner Millard.

Outlines of British Entomology, in prose and verse. Bristol, 1821.

*MILL. ICON. CHEN. ET LEP.

Pierre Milliere, in Lyons.

Iconographie et Description de Chenilles et Lépidoptères inédits.

In Annales de la Société Linnéenne de Lyon, 1858–1870.

Has most splendid coloured figures of many most extraordinary aberrations, variations, etc. It was also issued in separate form under same title.

*MORRIS. AGR. REF.

Rev. Dr. John G. Morris, of Baltimore, Lutheran Minister.

The Ailanthus Silkworm.

In the Report of the U. S. Department of Agriculture, p. 374, 1861.

*MORRIS. CAT. LEP. N. AM.

Catalogue of the described Lepidoptera of North America. Prepared for the Smithsonian Institution, by John G. Morris. Washington: Smithsonian Institution, May, 1860.

*MORRIS. SYN.

Synopsis of the described Lepidoptera of North America. Part I: Diurnal and Crepuscular Lepidoptera. Compiled for the Smithsonian Institution. Washington, 1862.

Contains descriptions of most of the, then, known *Diurnæ*, *Sphingidæ* and *Bombycidæ*. 358 pages.

*MORRISON. BUFF. BULL.

H. K. Morrison, formerly a shoemaker in Boston; now a dealer in Insects in North Carolina.

In the Bulletin of the Buffalo Society of Natural Sciences are the following of his articles:

Notes on North American Lepidoptera, p. 186-189.

Description of two new Noctuidæ from the Atlantic District, p. 274, 275, vol. I, 1873-1874.

Descriptions of new Noctuidæ, p. 109-117.

On the Species of *Calocampa*, p. 190-192, vol. II, 1874-1875.

*MORRISON. CAN. ENT.

Canadian Entomologist:

Specific Nomenclature, p. 70, 71.

Notes on an Interesting Specimen of *Pamphila Zabulon*, Boisd. & Lec., p. 164.

The Law of Priority in Nomenclature, p. 166-168.

Remarks on recent names given to some Lepidopterous Insects, p. 204-205, vol. V, 1873.

On *Anisopteryx Vernata* and *Pometeria*, p. 29-32.

On two new Species of Noctuidæ, p. 105, 106.

A new Species of *Ceramica*, p. 249-251.

On the Species referred to *Orthodes* by Guenee, p. 251-254.

Correspondence, p. 259, 260, vol. VI, 1874.

Correspondence, p. 15-17.

Description of a new North American Species of *Mamestra*, and of a genus allied to *Homohadena*, p. 90, 91.

On two new Species of Homoptera, p. 148, 149.

Description of a new *Hadena* from the White Mountains, p. 198.

Notes on an interesting variety of *Oncoenemis Chandleri*, p. 213, 214.

Descriptions and Notes on the Noctuidæ, p. 214-216, vol. VII, 1875.

*MORRISON. PROC. ACAD. NAT. SC. PHIL.

Proceedings of the Academy of Natural Science, Philadelphia:

Notes on the Noctuidæ, with descriptions of certain new species, p. 55-71; 428-436, vol. XXVII, 1875.

*MORRISON. PSYCHE.

Psyche. Organ of the Cambridge Entomological Club. Cambridge, Massachusetts.

Interesting Capture, p. 4.

List of Lepidoptera collected at Cliftondale and Wyoming, Mass., May 30, 1874, p. 16.

An Appendage of the male *Leucarcetia Acræa*, p. 21, 22.

Summer Butterflies at the White Mountains, p. 25, 26; 34, 35, vol. I, 1874.

Notes on White Mountain Noctuidæ, p. 41–43.

Varieties of *Cleora Pulchraria* Minot, p. 68–70.

On the Insect Fauna of the White Mountains, p. 85, vol. I, 1875.

*MOESCH. STETT. ENT. ZEIT.

Heinrich Benno Moeschler, in Kronforstchen bei Bautzen, Saxony.

Stettiner Entomologische Zeitung.

Contains the following articles:

Beitrag zur Schmetterlingsfauna von Labrador, p. 172–174, vol. IX, 1848.

Ein Neuer Spanner, *Pericallia* (Ennomos) Freitagaria, p. 143–145.

Bemerkungen zu einigen Südrussischen Falterarten, p. 218–232; p. 261–264, vol. XV, 1854.

Heliothis Nubigera, Friv., p. 211, vol. XVI, 1855.

Butalis Heinemannii, p. 372, 373, vol. XXX, 1869.

Beiträge zur Schmetterlingsfauna von Labrador, p. 113–125; 251–254; 265–272; 364–375, vol. XXXI, 1870.

Neue Exotische Schmetterlinge, p. 336–362, vol. XXXIII, 1872.

Beschreibung des Mannes von *Lomalosticha Nigrostriata*, p. 148, 149.

Exotisches, p. 303–313, vol. XXXV, 1874.

Exotisches (a Revision of Synonymic List of N. A. Butterflies north of Mexico. By S. H. Scudder), p. 202–211; 282–289, vol. XXXVI, 1875.

P. 32–41; 293–315, vol. XXXVII, 1876.

Bericht über Boisduval's Spéc. Général, p. 360–362, vol. XXXVII, 1876.

Deutsch Exotisches, p. 121, 122.

Nordamerikanisches, p. 414–426.

Anarta Tenebricosa, n. sp., p. 498–500, vol. XXXVIII, 1877.

*MOESCH. VERH. ZOOL.-BOTAN. GES.

Verhandlungen Zoologisch-botanischen Gesellschaft.

Beiträge zur Schmetterlings-Fauna von Surinam, p. 293–352, (2 plates), vol. XXVI, 1876.

*MOESCH. WIEN. MONAT.

Wiener Entomologische Monatschrift. Verantwortliche Redactoren: Julius Lederer und Ludwig Miller. Wien. vol. I, 1857; II, 1858; III, 1859; IV, 1860; V, 1861; VI, 1862; VII, 1863; VIII, 1864.

Contains the following papers on Lepidoptera:

Acentropus latipennis, Möschler, p. 55.

Vier neue südrussische Schmetterlinge, p. 273–276.

Beiträge zur Lepidopteren-Fauna von Labrador, p. 329–381, vol. IV, 1860.

Beiträge zur Lepidopteren-Fauna von Labrador, p. 129-139.

Neue südrussische Schmetterlinge, p. 139-143.

Dianthoccia Christophi, n. sp., p. 235, 236, vol. VI, 1862.

Bemerkungen zu einigen Sareptan Schmetterlingen, p. 63, 64.

Bemerkungen zu einigen Arten der Gattung *Atychia* Latr. p. 77-79.

Die zur Fauna von Europa gezählten Arten der Gattung *Chionobas*, p. 169-193; 201-217, vol. VII, 1863.

Beiträge zur Schmetterlingsfauna von Labrador, p. 193-200, vol. VIII, 1864.

MUELL. VOLL. NATURS.

Philip Ludwig Statius Mueller, Professor in Erlangen. Born in Esens, East-friesland, April 25, 1725; died in Erlangen Jan. 5, 1776.

Vollständiges Natursystem des C. v. Linné mit einer Erklärung. Nürnberg 1773-1776.

*OCHS. I, 1, 2; II, III, IV.

Ferdinand Ochsenheimer, Comedian in the Royal Theatre. Born in Mainz 1767; died in Vienna Nov. 2, 1822.

Die Schmetterlinge von Europa. Leipzig, bey Gerhard Fleischer dem Jüngern. Vol. I, 1, 1807; I, 2, 1808; II, 1808; III, 1810; IV, 1816.

The work was continued by Friederich Treitsche as

Die Schmetterlinge von Europa. (Fortsetzung des Ochsenheimer'schen Werks.) Leipzig, bey Gerhard Fleischer. Vol. V, 1, 1825, 2, 1825, 3, 1826; VI, 1, 1827, 2, 1828; VII, 1829; VIII, 1830; IX, 1, 1832, 2, 1833; X, 1, 1834, 2, 1835, 3, 1835.

*PACK. BOST. JOUR. NAT. HIST.

A. S. Packard, Jr., Doctor of Medicine, in Salem, Massachusetts.

Boston Journal of Natural History, vol. I-VII, 1834-1863.

On Synthetic Types in Insects, p. 590--603, vol. VII, 1863.

*PACK. GEOM.

Monograph of the Geometrid Moths.

Being vol. X of the Report of the United States Geological Survey of the Territories, F. V. Hayden, U. S. Geologist-in-charge. Washington, 1876.

*PACK. GUIDE.

Guide to the Study of Insects and a treatise on those Injurious and Beneficial to Crops, etc. By A. S. Packard, Jr., M. D. Salem: Naturalist's Book Agency, 1869.

*PACK. MEM. BOST. SOC. NAT. HIST.

Memoirs of the Boston Society of Natural History, vol. I--II, 1866--1878.

Gynandromorphism in Lepidoptera, p. 409--412, vol. II, 1870--1878.

*PACK. PROC. BOST. SOC. NAT. HIST.

Proceedings Boston Society of Natural History, vol. I-XIX, 1841-1877.

View of the Lepidopterous Fauna of Labrador, p. 32--63.

Increasing distribution of Canker worm, p. 88, vol. XI, 1868.

Catalogue of the Phalenidae of California, p. 381-411, vol. XIII, 1871.

Catalogue of the Phalænidæ of California, No. 2, p. 13-40, vol. XVI, 1874.

*PACK. PROC. ENT. SOC. PHIL.

Synopsis of the Bombycidæ of the United States.

P. 97-130 ; 331-394, in the Proceedings of the Entomological Society of Philadelphia, vol. II, 1864.

*PACK. PROC. ESS. INST.

Proceedings of the Essex Institute, vol. I-VI, 1848-1870.

Notes on the family Zygenidæ, p. 7-47, vol. IV, 1864-1865.

*PACK. REP. PBDY. ACAD. SC.

Report of the Peabody Academy of Science. Pamphlet, 1864-1877.

Record of American Entomology :

Rhopaloceres, p. 112-119, Ann. Report, 1871.

Rhopaloceres, p. 110-116, Ann. Report, 1872.

Heteroceres, p. 74-88, Ann. Report, 1873.

Descriptions of N. A. Phalænidæ, p. 52-81.

Notes on Moths of the families Phalænidæ and Pyralidæ, p. 82-92, Ann. Report, 1872.

*PALL. REIS. I.

Peter Simon Pallas, born in Berlin Sept. 22, 1741 ; died in Berlin Sept. 8, 1811.

Reise durch verschiedene Provinzen des Russischen Reichs in den Jahren 1768-1774. St. Petersburg, 1770-1801.

Large 4to, 5 vol.

*PANZ. SYST. NOM.

Georg Wolfgang Franz Panzer, Doctor of Medicine. Born at Etzelwangen in the Pfalz 1755 ; died June 28, 1829.

Systematische Nomenclatur über weiland Herrn Dr. Jacob Christian Schäffer's natürlich ausgemahlte Abbildungen regensburgischer Insekten. Erlangen, bey Johann Jacob Palm, 1804.

See Shaef, Icon. Ins.

*PARKER. CAN. ENT.

H. W. Parker, Professor at Amherst, Massachusetts.

Canadian Entomologist contains the following :

Description of *Hesperia Conspicua*, (Edw.) p. 51, 52.

The *Nisoniades* Butterflies, p. 112, 113, vol. III, 1871.

*PARKER. AM. ENT.

The American Entomologist and Botanist, an illustrated Magazine of popular and practical Entomology and Botany, edited by Charles V. Riley and Dr. George Vasey. St. Louis, Mo. : R. P. Studley & Co., vol. I. 1868-1869 ; II, 1870.

A new *Hesperian*, p. 271, 272, vol. II, 1870.

*PEALE. LEP. AM.

Titian Ramsay Peale, Naturalist and Artist. Born in the Philosophical Hall, Philadelphia, Oct., 1779. Member of the first Scientific Corps for exploration of Territories by the U. S. Government, and accompanied Major S. H. Long's Expedition to the Rocky Mountains in

1819-'20, and the U. S. Exploring and Surveying Expedition to the South Sea in 1838-'42.

Lepidoptera Americana: or, original figures of the Moths and Butterflies of North America, in their various stages of existence, and the plants on which they feed. Drawn on stone, and coloured from nature: with their characters, synonyms, and remarks on their habits and manners. By Titian R. Peale, Curator of the Philadelphia Museum. Vol. I. Philadelphia: William P. Gibbons, 1833.

*PEARSON. CAN. ENT.

C. W. Pearson, in Montreal, Canada.

Canadian Entomologist contains:

Platysamia Columbia, S. I. Smith, p. 119, vol. VI, 1874.

Rare Captures, p. 80.

Grapta Satyrus (Edwards), p. 216, 217, vol. VII, 1875.

List of Bombycidae, etc. (Caulfield and Pearson) p. 90-92, vol. IX, 1877.

PERRY. ARCAEA.

Arcana or *Museum of Nature*. London, Stratford, 1810-1811. 2 vols.

PERTY. DEL. ANIMAL.

Maximilian Perty, Professor in the University of Bern.

Delectus animalium articulorum, quae in itinere per Brasiliam annis 1817, 1820 jussu et auspiciis Maximiliani Josephi Bavariae regis augustissimi peracto, collegerunt Dr. J. B. de Spix et Dr. C. F. Ph. de Martius; digessit, descripsit et pingenda curavit Dr. M. Perty. Monachii, 1830-1834.

*PETIV. MUS.

James Petiver, Apothecary in London. Died in that city April 20, 1715.

Musei Petiveriani Centuria Prima (-X) Rariora naturae continens: viz. Animalia, Fossilia, Plantas, ex Variis Mundi Plagis advecta, Ordine digesta, et nominibus propriis Signata. A Jacobo Petiver. Londoni: Pauli, 1695-1703.

*PETIV. GAZOPH.

Gazophylacii Naturae & Artis Decas prima (-5). In qua Animalia, Quadrupeda, Aves, Pisces, Reptilia, Insecta Vegetabilia; Item Fossilia, Corpora Marina & Stirpes Minerales à Terra eruta, Lapides figura insignes &c. Descriptionibus brevibus & Iconibus illustrantur. Hisee Annexa erit Supellex Antiquaria, Numismata, Gemmae excisae, & Sculpturae, Opera Figulina, Lucernae, Urnae, Instrumenta varia, Inscriptiones Busta, reliquaeque ad rem priscam spectantia: Item Machinae, Effigies Clarorum vivorum, omniaque Arte producta. Patronis suis & Moeenatibus D. D. D. Jacobus Petiver. Londoni, 1702-1705.

*PETIV. PAP. BRIT. ICON.

Papilionum Britanniae Icones, nomina, &c., containing the Figures, Names, Places, Seasons, &c., of above eighty English Butter-flies, being all that have hitherto been observed in Great Britain. London, 1717.

POD. INS. MUS. GRAEC.

Nicolaus Poda von Neuhaus. Born in Vienna Oct. 4, 1723; died April 29, 1798. A Jesuit; Prof. Phys. in Gratz.

Insecta Musei Graccensis, quae in ordines, genera et species, juxta Systema Naturae Linnaei digessit. Graccii, Widmanstad, 1761.

*POEY. CENT. LEP. CUBA.

Prof. Felipe Poey, of Havana, Cuba.

Centurie de Lépidoptères de l'Île de Cuba. Contenant la description et les figures coloriées de Cent Espèces de Papillons nouveaux ou peu connus représentés d'après nature, souvent avec la Chenille, la Chrysalide, et plusieurs détails Microscopiques. Paris, 1832.

Latin and French.

*POEY. MEM. NAT. HIST. IS. CUBA I.

Memorias Sobre la Historia Natural de la Isla de Cuba. Habana, Acopanadas de sumarios Latinos y extractos en Frances. Habana. Vol. I, 1851; II, 1856–1858.

*POEY. CAT. MET. ETC. MEM. SOC. ECON. HAB. 2 SER.

Catálogo metodico y descriptivo de las Mariposas de la Isla de Cuba.

In the Memorias de la Sociedad Economica. Tom. II, III, 2d Series, 1846.

POLL. BEMERK. CHURPF. OEK. GES.

Johann Adam Pollich, born Jan. 1, 1740, at Lautern in the Pfalz; died Feb. 24, 1780.

Beschreibung einiger Insekten die in des Ritters v. Linne Natursystem nicht befindlich sind.

Pages 252–287 in Churpfälz. (Eken. Gesellsch. 1779.

*PRUNNER (DE). LEP. PEDEMONTANA.

Leonardo De Prunner.

Lepidoptera Pedemontana. Turin, 1798.

*PUTNAM. PROC. DAVENPORT ACAD. SC.

J. Duncan Putnam, in Davenport, Iowa.

The following Lepidopterological papers are in the Proceedings of the Davenport Academy of Natural Sciences, Vol. I, 1867–1876:

No. 1. List of Lepidoptera collected in the vicinity of Davenport, Iowa, p. 174–177.

No. 2. List of Lepidoptera collected in Colorado during the summer of 1872, p. 182–187.

No. 3. Report on the Insects collected by Captain Jones' Expedition to Northwestern Wyoming in 1873, p. 187–191.

No. 4. Report on the Insects collected in the vicinity of Spring Lake Villa, Utah Co., Utah, during the summer of 1875, p. 193–198.

*QUENS. ACT. HOL.

Conrad Quensel, born Dec. 10, 1767, at Leyda in Schonen; died at Carlberg Aug. 2, 1806. Prof. of Natural History in Stockholm.

Beskrifningar öfver 8 nya svenska Dagfjärillar.

P. 268–281 in Kongl. Vetenskaps Academiens nya Handlingar, vol. XII. Stockholm, 1791.

*RAY. HIST. INS.

John Ray (or Wray), Preacher. Born in Blacknotley, Essex, Nov. 29, 1628; died Jan. 7, ? 1704.

Historia Insectorum. Autore Joanne Raio, Collegii S. Trinitatis apud Cantabrigienses, & Societatis Regiae olim Socio. Opus Posthumum Jussu Regiae Societatis Londinensis Editum. Cui subjungitur Appen-

dix de Scarabeis Britannicis, Autore M. Lister, S. R. S. ex MSS. Musaci Ashmoleani. Londoni. A. & J. Churchill, 1710.

*RAMB. ANN. SOC. OBS.

J. Pierre Rambur, Doctor of Medicine in Fontainebleau.

Notice sur plusieurs espèces de Lépidoptères nouveaux du midi de la France.

Pages 255-268, Annales des Soc. d'Observation, II, 1829.

*RAMB. FAUN. ENT. AND.

Faune entomologique de l'Andalousie. Paris, Art. Bertrand, 1838-1839.
RAMB. CAT. LEP. AND.

Catalogue Systématique des Lépidoptères de l'Andalousie. Paris, Bail-
lière, 1828.

*RATH. AGR. REP.

S. S. Rathcon, Editor, in Lancaster, Penna.

In United States Agricultural Reports:

Entomology and its relations to Agriculture, p. 585-620, 1861.

Entomology, p. 372-390, 1862.

*REAK. PROC. ENT. SOC. PHIL. II-VI.

Tryon Reakirt, born in Philadelphia, Penna.

The following papers in the Proceedings of the Entomological Society of Philadelphia:

No. 1. Notes on Central American Lepidoptera, with descriptions of new species, No. I, p. 135-142, vol. II, 1863.

No. 2. Notes on Central American Lepidoptera, with descriptions of new species, No. II, p. 345-360, vol. II, 1863.

No. 3. Contributions towards a Monograph of the genus *Crocota*, p. 371-373, vol. II, 1864.

No. 4. Description of three new species of *Limacodes*, p. 250-252, vol. III, 1864.

No. 5. Notes upon Exotic Lepidoptera, chiefly from the Philippine Islands, with descriptions of some new species, p. 443-504, vol. III, 1864.

No. 6. Observations on some American *Pierinae*, p. 216-222, vol. IV, 1865.

No. 7. Descriptions of some new species of *Danainae*, p. 217-223, vol. V, 1865.

No. 8. Descriptions of some new species of *Eresia*, p. 224-227, vol. V, 1865.

No. 9. Coloradian Butterflies, p. 122-151, vol. VI, 1866.

*REAK. PROC. ACAD. NAT. SC. PHIL.

The following papers in the Proceedings of the Academy of Natural Sciences of Philadelphia:

Descriptions of some new species Diurnal Lepidoptera, p. 238-249; 331-342, vol. XVIII, 1866.

Continued p. 87-91, vol. XX, 1868.

RETZIUS. GEN. ET SP. INS.

Andreas Johann Retzius, Prof. of Natural History. Born in Christianstadt Oct. 3, 1742; died in Stockholm Oct. 6, 1821.

Caroli De Geer genere et species insectorum et generalissimi auctoris

scriptis extraxit, digessit, latine quand. partem reddidit, et terminologiam insectorum Linneanam addidit. Lipsiae, Cruse, 1783.

*RIDINGS. PROC. ENT. SOC. PHIL.

James Ridings, cabinet maker in Philadelphia, Pa. Born in England.

In the Proceedings of the Entomological Society of Philadelphia, vol. I, 1861--1863 :

Description of a supposed new species of Ageridæ from Virginia, and observations upon *Papilio Daunus*, Boisd., p. 277, 278.

*RILEY. ENT. REP. STATE OF MISSOURI.

Charles V. Riley, formerly State Entomologist of Missouri ; now, Entomologist to the U. S. Department of Agriculture at Washington.

First Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri, made to the State Board of Agriculture, etc. Jefferson City, Missouri, 1869. *

Second, 1870 ; Third, 1871 ; Fourth, 1872 ; Fifth, 1873 ; Sixth, 1874 ; Seventh, 1875 ; Eighth, 1876 ; Ninth, 1877.

*RILEY. AM. ENT.

American Entomologist, an Illustrated Magazine of Popular and Practical Entomology. Edited by Benj. D. Walsh and Charles V. Riley. Vol. I, St. Louis, 1868--1869. Vol. II, by Charles V. Riley and Dr. George Vasey, 1870.

*RILEY. PROC. BOST. SOC. NAT. HIST.

Proceedings of the Boston Society of Natural History, vol. I--XIX, 1841--1877.

Description of a new *Agrotis* (*A. Morrisoniana*), p. 286--288, vol. XVII, 1875.

*RILEY. CAN. ENT.

In the Canadian Entomologist are the following relative to Lepidoptera : How to distinguish between *Limenitis Disippus*, Godt., and *L. Ursula*, Fabr., in their preparatory states, p. 52, 53. Notes, p. 117--119.

Inquinous Moth Larva in Oak Galls, p. 195, 196, vol. III, 1871.

The Acorn Moth, *Holocera glandulella*, n. sp., p. 18, 19.

"Polyhistor?" p. 38, 39.

Vanessa Antiopa or *Papilio Antiopa*? p. 218, vol. IV, 1872.

Notes on *Hyperchiria Io*, (Fabr.) p. 109, vol. V, 1873.

On the Insects more particularly associated with *Sarracenia Variolaris* (Spotted Trumpet-Leaf), p. 207--214, vol. VI, 1874.

Pieris Vernalis and *P. Protodice*, p. 39, vol. X, 1878.

*RILEY. TRANS. ST. LOUIS ACAD.

The Transactions of the Academy of Science of St. Louis, vol. I--III, 1856--1878.

On a new genus in the Lepidopterous family Tineidæ, with remarks on the fertilization of the *Yucca*, p. 55--64.

Supplementary Notes on *Pronuba Yuccasella*, p. 173--177.

Hackberry Butterflies : Description of the Early Stages of *Apatura Lycaon*, Fabr., and *Apatura Herse*, Fabr., with remarks on their synonymy, p. 193--208.

On the ovaposition of the Yucca Moth, p. 208--210.

Descriptions and Natural History of two Insects which brave the dangers of *Sarracenia vulgaris*, p. 235--240.

Descriptions of two new Moths, p. 240--242.

Remarks on Canker Worms and description of a new genus of *Phalæniæ*, p. 273--280.

Notes on the Yucca-borer, *Megathymus Yuccæ*, p. 323--344.

Further remarks on *Pronuba Yuccasella*, p. 568--573.

On the difference between *Anisopteryx pometaria*, Harr., and *Anisopteryx æscularia*, W. V., with remarks on the genus *Paleacrita*, p. 573--577, vol. III, 1878.

*RILEY. PROC. AM. ASS. ADV. SC.

Proceedings American Association for the Advancement of Science :

On the Insects more particularly associated with *Sarracenia Variolaris*, p. 18--25.

On the summer dormancy of the larva of *Phyciodes nycteis*, Dbldy., with remarks on the natural history of the species, p. 108--112, vol. XXIII, 1874.

Biological Notes on the Army Worm, p. 279--283, vol. XXV, 1876.

*RILEY. AM. NAT.

The American Naturalist, an Illustrated Magazine of Natural History. Salem, Mass. : Peabody Acad. Sc., vol. I--XI, 1867--1877.

Controlling Sex in Butterflies, (a review of an article by Mrs. Mary Treat, p. 129, &c.) p. 513--521.

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Peter Rossi, Professor in Pisa.

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*LA SAG. HIST. CUB. ANIM. ART.

Ramon de la Sagra, Director of the Botanical Gardens of Havana. Born in Coruna 1798.

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W. Saunders, Apothecary in London, Ontario, Canada.

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*SAUNDERS. PACKARD'S GUIDE.

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*SAY. AM. ENT.

Thomas Say, born in Philadelphia, Pa., July 27, 1787; died Oct. 10, 1834.

One of the founders of the Academy of Natural Sciences of Philadelphia.

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*SCHAEF. ICON. (OR ICON INS.).

Jacob Christian Schaeffer, Doctor of Theology in Regensburg. Born in Querfurt May 30, 1718; died in Regensburg Jan. 5, 1790.

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*SCHN. SYST. BESCH.

David Heinrich Schneider, Lawyer in Stralsund.

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*SCHNEIDER. NEU. MAG.

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*SCOP. ENT. CARN.

Johann Anton Scopoli, born at Cavalese in Tyrol June 13, 1723; died in Pavia May 8, 1788. Professor of Chemistry and Botany in Pavia. Was blind the last year of his life.

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*SEBA. THES. IV.

Albert Seba, Apothecary in Amsterdam. Born May 2, 1665, in Etzeln; died in Amsterdam May 3, 1736.

Description exacte des principales curiosités naturelles du magnifique Cabinet d'Albert Seba. Tome quatrième et dernier.

Locupletissimi Rerum Naturalium Thesauri accurata descriptio et iconibus artificiasissimis expressio per universam physices historiam. Opus, cui, in hoc rerum genere, nullum par existit, ex toto terrarum orbe collegit, digessit, descripsit, et depingendum curavit Albertus Seba, etc., etc. Tomus IV. Amstelædami, apud H. C. Arksteum et H. Mercurium, et Petrum Schouten, 1765.

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SEPP. SURIN. VLIND. III.

Christian Sepp, copper-plate engraver. Born in Goslar; died in Amsterdam.

Surinaamsche Vlinders, naar het, leven geteekned. Amsterdam.

Vol. I, 1848; II, III, 1855.

*SHAW-NODD. NAT. MISS.

George Shaw, born in Birton Dec. 10, 1751; died in London July 22, 1813. Librarian in the British Museum.

The Naturalist's Miscellany: or Coloured Figures of Natural Objects; drawn and described immediately from nature.

Vivarium Nature, sive Rerum Naturalium variæ et vividæ icones ad ipsam naturam depictæ et descriptæ.

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*SHAW. ZOOL.

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*SLOANE. JAMAICA (OR HIST. JAMAICA).

Sir Hans Sloane. Born in Killileagh, Ireland, April 16, 1660; died at Chelsea, Eng., Jan. 11, 1752. Sojourned some time in the West Indies.

A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, etc., of the last of those Islands; to which is prefixed An Introduction, wherein is an account of the Inhabitants, Air, Water, Diseases, Trade, &c., of that Place, with some Relations concerning the Neighboring Continent, and Islands of America. Illustrated with The Figures of the Things described, which have not been heretofore engraved; In large Copper-Plates as big as the Life. By Hans Sloane, M. D.; (in vol. II. By Sir Hans Sloane, Bart.). In Two Volumes. Many shall run to and fro, and knowledge shall be increased. Dan. xii. 4. London, vol. I, 1707; II, 1725.

*SPEYER. ISIS.

Dr. Adolph Speyer.

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*SPEYER. STETT. ENT. ZEIT.

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*STANT. MAN. BRIT. BUTT.

Henry Tibbats Stainton, at Mountsfield, Lewisham near London. Born in London Aug. 13, 1822.

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*STEPH. ILL. BRIT. ENT. HAUST. I--IV.

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*STEPH. CAT. BRIT. INS.

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*STGR. STETT. ENT. ZEIT.

Dr. Otto Staudinger, in Blasewitz bei Dresden, Saxony. Born May 2, 1830.

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*STGR. VERH. ZOOL. BOT. GES.

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*STGR. CAT.

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*STOLL. SUP. CRAM.

Casper Stoll, died in 1795.

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Published as Supplement to Cramer's *Papillons Exotiques*. In Hollandish and French.

*STRECK. LEP. RHOP.--HET.

Ferdinand Heinrich Herman Strecker, Sculptor, in Reading. Born in Philadelphia March 24, 1836.

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3. Descriptions and (11) figures of ten (two new) species of Catocalae, p. 17--23.

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4. Descriptions and (15) figures of seven (one new) species of Diurnal Lep., p. 25--32, June, 1873.

5. Descriptions and (12) figures of eleven (one new) species of Catocalae, p. 33--40.

Identity of *Anarta luteola*, G.--R., with *A. cordigera*, Thnb., p. 40.

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6. Descriptions and (13) figures of five species of Diurnal Lep., p. 45--50, Aug., 1873.

7. Monograph of the known species of *Smerinthus* in N. America, (with 15 figures), p. 51--60, Sept., 1873.

8. Descriptions and (24) figures of ten species and varieties of Diurnal Lep., p. 61--68.

Entomological Notes: *Endryas*; *Anticosti* Lepidoptera; *Limenitis proserpina*; *Pieris beckerii*; *Catocala meskei*, p. 68--70, 1874.

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10. The N. American species of the genus *Lycaena* (with 47 figures), p. 81--93.

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Notices of some new and rare species: *Macroglossa Fumosa*, n. sp., *Sph. Coniferarum*, Ab.-S., *Sph. Eremitoides*, n. sp., *Eudæmonia Jehovah*, n. sp., *Cat. Magdalena*, n. sp., *Cat. Aspasia*, n. sp., *Dryobota Californica*, Behr MS., *Taeniocampa Parvæ*, Behr MS., *Cosmia Sambuci*, Behr MS., *Cucullia Solidaginis*, Behr MS., *C. Matricariæ*, Behr MS., *Plusia Echincystides*, Behr MS., *Plusia Gamma*, L., p. 93, 94, May, 1874.

11. Descriptions and (16) figures of twelve species and one variety (ten new) of Catocalæ, p. 96--99.

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12. Descriptions and (10) figures of five (two new) species of Bombycidae, p. 101--105.

Notes on various species and varieties: *Lycaena Regia*, Bdl., a synonym of *L. Sonorensis*, Feld.; *Lyc. Rhæa*, Bdl., a synonym of *L. Catalina*, Reak.; *Catocala Levettei*, Grote, a synonym of *C. Judith*, Streck.; *C. Anna*, Grote, a synonym of *C. Amestris*, Streck.; *C. Adoptina*, Grote, a synonym of *C. Delilah*, Streck.; *Gorgopis Quadriguttatus*, Grote, a synonym of *Hep. Argenteo-maculatus*, Harr.; *Arctia Anna*, Grote, a var. of *A. Persephone*, Grote; *Catocala Simulatrix*, Grote, the ♀ of *C. Obscura*, Streck.; a variety of *Catocala Cucumbens*, p. 105, 106.

Meagre descriptions of some (5) new species, to be followed in a subsequent part by what is infinitely better—good representations, p. 106, 107.

On Nomenclature, p. 107, 108, Feb., 1875.

13. Descriptions and (18) figures of seventeen (six new) species of Sphingidae, p. 109--118.

On the Generic Phantasies of S. H. Scudder, p. 118--120.

Notes, new species, etc.: New sp. *Melinæa Dora*, *Ageronia Anomala*, *Catocala Herodias*, *C. Circe*, *Bunæa Eblis*, *Heliothis Regia*, *Fastidiosa*, *Siren*, *Inclara*, *Nubila*, *Rubiginosa*, *Imperspicua*, *Ultima*, *Spectanda*, *Enigma Mirificum*, p. 120--122.

Ten minutes' notice of "A Check List of N. Am. Noctuidæ by A. R. Grote," p. 124, Jan., 1876.

14. Descriptions and (9) figures of eight (two Sph. new) Sphingidae and Bombycidae, p. 125--128.

New species, varieties, etc.: *Pap. var. Utahensis*, *Pap. Rutulus* var., *Thecla Kali*, *Th. Fotis*, *Satyryx Ashtaroth*, *Aedeiphron Grandis*, *Cucullia Antipoda*, *Catocala* var. *Zillah*, p. 128, 129.

New Lep. from the vicinity of New Braunfels and San Antonio, Texas: *Melitæa Imitata*, *M. Larunda*, *Libythea Larvata*, *Charis Guadeloupe*, *Pamphila Similis*, *Spilothyrus Notabilis*, *Arctia Oithona*, *Datana Robusta*, *Heliothis Lanul*, *H. Gloriosa*, *Catocala Utlume*, p. 130, 132.

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15. Descriptions and (19) figures of sixteen species and varieties of Lep., two diurnals (one new); two (new) Sphingidæ; eleven Bombycidæ (two species and five varieties new), p. 135--139.

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*STRECK. PROC. ACAD. NAT. SC. PHIL.

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Williams Swainson, born in England; died in New Zealand in 1856.

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*THNB. DISS. ENT. SUEC. I--VII.

Carl Peter Thunberg. Born Nov. 11, 1743, in Jonkoping; died Aug. 8, 1828, at his country-seat Tunaberg. The successor of Linnæus as Professor of Natural History in the University of Upsala. From 1772 to 1775 he was a Physician in the service of the Dutch East India Company. In 1775 he lived in Batavia and Japan.

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*TREITS. V--X.

Friedrich Treitschke, born in Leipzig 1776; died in Vienna 1842.

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*TRIM. RHOP. AFR. AUSTR. I.

Roland Trimen.

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*D'URBAN. CAN. NAT.

William Stewart D'Urban, Newport, Rhode Island.

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Philip R. Uhler, Librarian of the Peabody Institute, Baltimore.

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*WALKER. LIST LEP. B. M.

Francis Walker, born July 31, 1809, at Arno's Grove, Southgate, England; died Oct. 5, 1874, at his residence Elm Hall, Wanstead, England.

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WALLENG. SKAND. DAGF.

H. D. J. Wallengren.

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*WESTW. TRANS. LINN. SOC.

John Obadiah Westwood, born in Sheffield, England, Dec. 22, 1805. Professor of Zoology in the University of Oxford.

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*WHITNEY. PROC. BOST. SOC. NAT. HIST.

Chas. P. Whitney, Storekeeper in Milford, New Hampshire.

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*WHITNEY. CAN. ENT.

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By Ignaz Schiffermüller and Michael Denis.

Prof. Schiffermueller was born in Helmonstedt, upper Austria, Nov. 2, 1727; died in Linz 1809. Denis, a Jesuit scholar and writer, was born in Schaerding, Bavaria, Sept. 27, 1729; died in Vienna Sept. 29, 1800.

*WILHELM. UNT. NAT. II.

Gottlob Tobias Wilhelm, died Dec. 10, 1811.

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*WOOD. IND. ENT.

William Wood.

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*ZETT. INS. LAPP.

Johann Wilhelm Zetterstedt, Professor in Lund. Born May 20, 1785.

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*ZELLER. STETT. ENT. ZEIT.

Philip Christoph Zeller, Prof. in Messeritz. Born April 9, 1808, in Steinheim, Wurtemberg.

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M. Schuyler Elliot.



